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[SPECIAL ISSUE]

THE NEW UFO INTEREST

SCIENTIFIC APPRAISALS

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ROBERT SHEAFFER

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Editor's Note

UFOs: Fact and Fiction
A Special Issue

UFOs fascinate the public and both amuse and frustrate science-minded skeptics. Oh, you thought UFOs were passé, things of the past? Not quite. It is true that we don't seem to get great waves of mass UFO sightings anymore. Those started with newspaper and TV news reports and snowballed into what I heard Carl Sagan once jokingly refer to as "UFO flaps—that's the technical term." The media have since vastly multiplied, and the lines between news and entertainment have blurred. What we have now instead are Internet sites and dozens of episodes and multipart series on cable television channels devoted to UFOs. Too often the few new cases are sensationalized and old cases resurrected and credulously picked through. The UFO movement itself keeps evolving, trying to find something new ("crashed saucers," "contacts," "abductions," supposed cover-ups and conspiracies). This past summer, *Larry King Live* aired three consecutive Fridays of hour-long shows devoted to UFOs, spreading more beguiling misinformation to millions.

Photo: Randy Montoya, Sandia Labs

Editor Ken Frazier and visitor.

We thought it time to provide an informed response. We present a special issue, "The New UFO Interest: Scientific Appraisals." Our authors are all international experts. Robert Sheaffer, David Morrison, James Oberg, Joe Nickell, Dave Thomas, and Andrew Fraknoi are longtime fellows of the Committee for Skeptical Inquiry (formerly CSICOP), and James McGaha is a veteran CSI scientific consultant. Kingston George was the engineer and project initiator for a Vandenberg Air Force Base program that unwittingly created a UFO myth of its own. They approach their evaluations from the viewpoint of science and open-minded skepticism.

Robert Sheaffer sets the calm, professional tone with his masterly opening overview of six decades of the UFO movement—its fads and foibles, transformations, "science fiction" and "New Age" branches, psychological aspects, and its emphasis today on conspiracy. Our other authors give their own perspectives and examine specific cases and claims (Roswell, Big Sur, Stephenville lights, a famous Soviet UFO case, supposed astronaut sightings of UFOs, the face on Mars, etc.). Three French authors appraise thirty years of official studies in France.

Studying UFO cases and their proponents tells us something about our hopes, fears, and aspirations. It tells us a lot about perception and misperception and the effect of culture, expectation, and belief on what we think we see (or hope to see). So far the cases haven't revealed anything about extraterrestrials, but they tell us a lot about ourselves. The topic continues to attract a new generation of enthusiasts. Our articles show that scientific thinking and an insistence on hard evidence provide a reasoned approach that can sift fact from fiction without diminishing the fascination and fun.

—Kendrick Frazier

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Discovery of HIV Nets 2008 Nobel Prize for Two French Virologists

KENDRICK FRAZIER

The discovery of the human immunodeficiency virus (HIV) has been honored with a share of the 2008 Nobel Prize in Physiology or Medicine. French virologists Françoise Barre-Sinoussi of the Regulation of Retroviral Infections Unit at the Institut Pasteur in Paris and Luc Montagnier of the World Foundation for AIDS Research and Prevention, also in Paris, jointly received one-half of the year's prize. (The other half went to German researcher Harald zur Hausen for his discovery that human papilloma viruses cause cervical cancer.)

The two French researchers carried out their experiments in the 1980s, searching for a causative agent of a novel immunodeficiency syndrome reported in 1981. They eventually identified the novel human retrovirus now called HIV and isolated it from sexually infected individuals, hemophiliacs, mother-to-infant transmissions, and transfused patients.

Not cited was American scientist Robert Gallo, often credited as a co-discoverer of HIV and as the first to link HIV to AIDS. The Nobel Foundation received numerous inquiries about the apparent omission of Gallo but generally deflected the criticism, noting that the prize went for the discovery of the virus, not for detection of the link between the virus and the AIDS disease.

What the foundation said about that in its official announcement was contained in this initial sentence about the importance of the HIV discovery: "Soon after the discovery of the virus, several groups contributed to the definitive demonstration of HIV as the cause of acquired human immunodeficiency syndrome (AIDS)."

The Nobel Foundation said the virus discovery made rapid cloning of the HIV-1 genome possible, which allowed identifying important details about its replication cycle and its interaction with hosts . . . and development of methods to diagnose infected patients and screen blood products. The "unprecedented development" of several classes of new antiviral drugs was also the result of knowledge of the details of the viral replication cycle, the Nobel foundation said.

"Never before has science and medicine been so quick to discover, identify the origin, and provide treatment for a new disease entity. Successful anti-retroviral therapy results in life expectancies for persons with HIV infection now reaching levels similar to those of uninfected people."

Whether the prize and subsequent new publicity accorded this work will ameliorate claims of AIDS deniers who still contend AIDS is caused by something other than the HIV virus (see Nicoli Nattrass, "AIDS Denialism vs. Science," SI, September/October 2007) remains to be seen. But it should make advancing those claims in any scientifically informed arena more difficult.

Nobel Prize in Physiology or Medicine 2008
Françoise Barré-Sinoussi
born 1947 in France
Professor and Director of the
"Regulation of Retroviral infections" Unit,
Virology Department, Institut Pasteur,
Paris, France
Luc Montagnier
born 1932 in France
Professor emeritus and Director of the
World Foundation for AIDS Research and Prevention
Paris, France

Françoise Barré-Sinoussi and Luc Montagnier jointly received one half of the 2008 Nobel Prize for medicine.

Kendrick Frazier is editor of the SKEPTICAL INQUIRER.

FTC Warns Against Bogus Cancer Cures, Charges Five Companies

The Federal Trade Commission has charged five companies with making false and misleading claims for cancer cures and said it had reached settlements with six others.

"As long as products have been sold, there has been somebody out there selling snake oil to consumers," Lydia Parnes, director of the FTC's bureau of consumer products, was quoted as saying in an Associated Press article. "There is no credible scientific evidence that any of the products marketed by these companies can prevent, cure, or treat cancer of any kind."

She said the FTC and the Food and Drug Administration were launching a consumer education campaign warning of bogus claims for cures.

The products the companies marketed include essiac teas and other herbal mixtures, laetrile, black salve (a corrosive ointment), and mushroom extracts.

A representative of one of the companies, Native Essence Herb Company in El Prado, New Mexico, called the decision "censorship," according to the Associated Press. The other cases are Omega Supply in San Diego, California; Daniel Chapter One in Portsmouth, Rhode Island; Gemtronics Inc., in Franklin, North Carolina; and Herbs for Cancer in Surprise, Arizona. The five complaints will now go before administrative law judges.

Parnes said more than a hundred warning letters were sent out, and many advertisers dropped or changed their claims. Of the complaints resolved by settlements, she said companies paid restitution ranging from $9,000 to $250,000.

The FDA said it has sent out twenty-eight warning letters and that the total number of fake cancer products is up to 187. For more information, see the FTC Bogus Drugs page, available online at www.ftc.gov/curious.

Sid the Science Kid: Meet Bill Nye for the Preschool Set

Geared toward preschoolers, PBS Kids's new animated show, Jim Henson's Sid the Science Kid, debuted in September of 2008. Science Kid takes advantage of young children's curiosity of the world around them to encourage a scientific outlook, letting viewers "Observe! Compare! Contrast! Describe!" just like real scientists.

Sid, the self-described "kid who wants to know everything about everything," is a five-year-old precocious preschooler. Each morning Sid asks a new question, such as "Why are my shoes shrinking?" or "How can I measure a big whale with this little ruler?" With the help of his parents, school friends, and teacher, Sid spends the rest of the day investigating the answer to his question by observing the world around him, conducting interviews and experiments, and drawing conclusions from these activities.

Each week's episodes collectively deal with one broad topic, while individual episodes handle a subtopic—not unlike the sections within chapters of an elementary-level science textbook. The fifth show of every week acts as an overview of that week's topic. According to the show's Web site: "By connecting experiences conceptually and exploring topics over an extended period, Sid increases learners' opportunities for discovering important ideas." So how does all of this keep a preschooler interested? With eye-catching graphics, catchy songs, and memorable characters.

Science Kid is animated using the brand-new Henson Digital Performance System (HDPS). It is a synthesis of traditional puppetry and CGI graphics. What's unique about this new animation is that it can be performed in real time. As the actors perform, their body movements are captured with digital sensors and mirrored by the animated characters onscreen. At the same time, puppeteers use mechanical gloves to perform the characters' facial movements while voicing the characters, much like a traditional puppeteer would. "Essentially," said Lisa Henson, daughter of the late Jim Henson and co-CEO of The Jim Henson Company, "our puppeteers (and performers) are our animators."

The songs on Science Kid are both fun and endearing, with titles such as "I Magnify," "It's Not Scary, It's Decayed," and "The Journey of a Germ." They are reminiscent of some of the song sequences on Sesame Street, which

is perhaps not surprising considering that the show is produced by The Jim Henson Company. This also explains the familiarity of the characters despite the new technology bringing them into children's televisions. Sid and his family and friends are Muppets for the digital age, complete with Technicolor skin and hair.

Also laudable is Science Kid's interactive Web site. The site has two sections: one for kids and one for parents/educators. The kids' section keeps children engaged and learning with virtual environments from the show, video clips (played on a specially designed kid-friendly player), interactive games, activities, and lots of cameos by the show's characters. The adults' section provides background information on the show and its educational philosophy, episode guides, and viewing tips on how your child can get the most out of the program.

In answer to criticism that pre-school is too early for a topic as "advanced" as science, the producers have this to say: "Preschoolers are curious about the world around them and are motivated to discover how it works. They ask questions and persevere to find answers. They don't think of science as scary, unknowable, or for experts only, and our goal is to make sure they never do!" With infectiousness science-based shows like Sid the Science Kid around, hopefully today's children will become tomorrow's science enthusiasts. The Jim Henson Company and PBS Kids deserve accolades for their efforts to bring science appreciation to an ever younger audience.

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The Jim Henson Company. 2008. PBS Kids: Sid the Science Kid Web Site. Available online at http://pbskids.org/sid/index.html.

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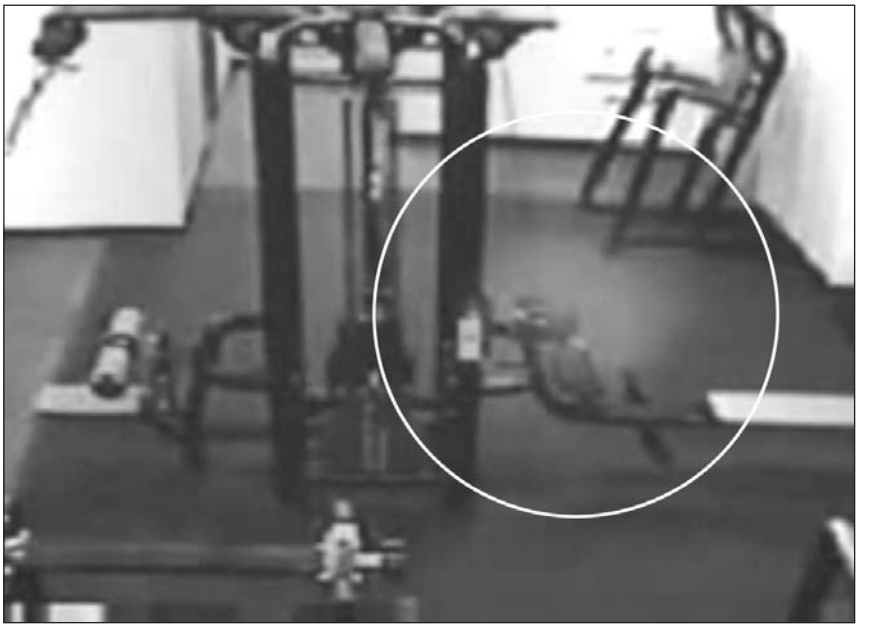
—Julia Lavarnway

Julia Lavarnway is an assistant editor of SKEPTICAL INQUIRER and Free Inquiry magazines. Her mini dachshund, Lennon, is a big fan of Sid the Science Kid.

Kansas Gym Ghost Video Mystery Solved

On September 12, 2008, a surveillance video captured what many believed to be a ghost. The video was taken at Anytime Fitness, an all-night fitness club in Overland Park, Kansas. When owner Kim Peterson came in one morning and reviewed the previous night's security footage, she was surprised and mystified by what she saw: a glowing, fuzzy light apparently in a workout area, meandering around the weight benches and fitness machines.



A still of the "ghost" from a security camera at Anytime Fitness.

The story drew inquiries from the press and the public around the world. I was asked by LiveScience.com to investigate the mysterious ghost video. While I prefer onsite field investigations, it's not always practical or economical to visit the scene. As it turned out, the case could be solved from a careful examination of news reports and the footage (available on YouTube at www.youtube.com/watch?v=suFfI0R4vhQ).

The image appeared at 2:21 in the morning, about half an hour after the last person left the building. It reappeared about nine times over the next two hours, each time briefly moving across the room. It baffled Peterson, her staff and members, and the security company. Lights have never activated the camera before, Peterson said. "I called the security company, and they said, 'I don't know why that light would make the camera kick on.'" It seemed a real mystery. Furthermore, the company told her, 600 other clients have the same security system, but none had reported recording such an incident.

Various people offered their theories, ranging from a hoax to a bug to headlights from a passing car. Peterson and her security company dismissed all of these obvious explanations—by far the most popular was that a ghost visited the gym for an early-morning workout. Peterson's son suggested it was his deceased grandfather, looking after his mother's new business.

While the ghost idea was popular, a closer look at the image reveals some interesting clues about the ghost's identity:

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– Jacob Bronowski, scientific polymath

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Toni Van Pelt, Paul Kurtz, and Ron Lindsay (standing); Lawrence Krauss, David Helfland, and Nobel Laureate Paul Boyer (seated) introduced the Declaration in Defense of Science and Secularism at the inaugural press conference of the Center for Inquiry/Office of Public Policy in Washington, D.C.

Local leaders, campus activists, and students from around the world came together at CFI's Summer Session.

Latin American and U.S. skeptical activists met at the CFI-sponsored First Iberoamerican Conference on Critical Thinking in Peru.

The new Naturalism Research Project will more than double our library facilities and create a collegial setting for scholarly dialogue and research.

Clue Number 1: The object is whitish and out of focus. Security cameras (especially the round "fish-eye" lenses used in the club) are designed to be mounted high above the ground and record activity twenty or more feet away. Things at that distance will be in focus, while objects close to the lens will be out of focus. Therefore the object must have been very close to the camera.

Clue Number 2: The object appears to be glowing, but there's no indication that it is actually emitting light. It has all the characteristics of something that is instead reflecting white light, perhaps from one of the bright lights mounted around the camera (you can see them clearly in video footage of the story).

Various people offered their theories, ranging from a hoax to a bug to headlights from a passing car. Peterson and her security company dismissed all of these obvious explanations—by far the most popular was that a ghost visited the gym for an early-morning workout.

Clue Number 3: Though Peterson and news reporters claimed that the ghostly object "spent the night wandering around the weights," a closer look at the video shows it instead wandered over or across them. Its movements do not show any interaction with the objects in the room at all, suggesting it was not in the room but instead above it.

Clue Number 4: Despite the fact that the gym had at least eight different cameras on and functioning that night, the "ghost" was seen on only one of them. If the spirited image had actually been in the room, other cameras should have recorded the same image from other angles. They didn't, therefore the object and phenomenon, whatever it was, only happened to that one camera.

One explanation prematurely dismissed by Peterson and others is almost certainly the correct one: the ghost is a bug. A spider or insect wandered onto the camera; that's why it was out of focus, why it seemed to glow, why it didn't interact with anything in the room, and why it only appeared on one camera. It's true that a moving light wouldn't activate the camera, as they are sensitive to motion, not light. But it was the bug's movement that triggered the sensor and started the recording. This also explains why none of the other 600 clients with the same system reported seeing a ghost. Why would they?

A bug on the camera fits all the facts and solves the mystery. And, as SKEPTICAL INQUIRER readers know, it's not the first time that a spider on a security camera created a ghostly image; in June 2007, a courthouse in Santa Fe, New Mexico, captured a nearly identical "ghost" that turned out to be a bug (see "Santa Fe 'Courthouse Ghost' Mystery Solved," SI September/October 2007).

—Benjamin Radford

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Skeptics Create Creepy Café

One shouldn't be surprised to hear at a pre-Halloween gathering in Hollywood, California, several people testifying about their personal encounters with the paranormal. Hollywood-types tend to flock to the mystical, whether it's late October or not.

One might be a bit surprised to hear that these stories were recounted during a Café Inquiry in the lobby of the Center for Inquiry's Steve Allen Theater. Café Inquiry is the CFI/Los Angeles's monthly public discussion about science and other issues.

But would you believe that the narrators relaying the true tales of terror were virtually all dedicated skeptics? It's true!

Members of CFI/LA, the Independent Investigations Group, and others gathered on the evening of October 22, 2008, to share personal experiences that felt like paranormal experiences at the time. The stories they told relate the same kinds of experiences that many people who believe in the paranormal have had but are unaware of the rational explanations for them.

And so we heard a room full of skeptics talk about some very odd experiences. There was the disembodied voice in the back seat of a car, the hand grabbing the leg of someone asleep in an empty room, some wild coincidences, and other strange stuff. After each story, they opened the floor to possible explanations from the rest of those in attendance.

What was really exceptional was that the explanations that came forth from the crowd were rational and science-based, with none of the usual resistance from the witnesses themselves ("I know what I saw!" "He couldn't have known that!" "There's no other possible explanation!"). Ah, but there usually are other possible explanations—even for bizarre events.

— James Underdown

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Return to Roswell

Conspiracy theorists notwithstanding, the crash of a supposed flying saucer near Roswell, New Mexico, in mid-1947 has been effectively explained as something much more mundane: a balloon-borne device. Yet Roswell zealots continue to try to debunk the debunking. New claims—that the Roswell "debris field" described by eyewitnesses was too extensive to have resulted from a crashed balloon array—are being touted. The research was tested experimentally in the Discovery Channel documentary, Best Evidence: The Roswell Incident (2007). I was asked to observe and comment on the experiment, and here is my own report on the matter for SKEPTICAL INQUIRER readers.

Figure 1. The "Roswell Incident" has been transformed from a mundane occurrence into a sensational science fantasy, as in this mural in the Roswell UFO Museum. (Photo by Joe Nickell)

Background

On July 8, 1947, an unauthorized press release from an eager but relatively inexperienced public information officer at New Mexico's Roswell Army Air Field propelled the "Roswell Incident" into history. He reported that a "flying disc" had been recovered from an area ranch where it had crashed (Berlitz and Moore 1980; Korff 1997). The crash came in the wake of the first modern UFO sighting, witnessed by private pilot Kenneth Arnold on June 24. Arnold's string of "flying saucers" may well have been nothing more than mirage effects caused by a temperature inversion (McGaha 2006), but it initiated the modern wave of UFO sightings (Nickell 2007).

Soon after the Roswell press release made worldwide newspaper headlines, the young officer was reprimanded and new information was announced: the unidentified flying object had really been a weather balloon, said officials. Photographs of the wreckage matched descriptions of the debris given by the rancher W.W. "Mac" Brazel, who discovered it on his rented property, the Foster ranch. In the Roswell Daily Record (July 9, 1947), Brazel described (in a reporter's words) "a large area of bright wreckage" consisting of tinfoil, rubber strips, tough paper, sticks, and tape with flower designs. "There was no sign of any metal in the area," noted the newspaper story, "which might have been used for an engine and no sign of any propellers of any kind."

Although officials announced that the UFO had simply been a weather balloon, the best evidence now indicates that the crashed device was really a United States government spy balloon—actually a balloon-array with dangling radar reflectors. Part of Project Mogul, it was used in an attempt to monitor sonic emissions from anticipated nuclear tests by the Soviet Union. I spoke about this with former Project Mogul scientist Charles B. Moore who identified the Roswell wreckage in photographs as likely coming from a lost Flight 4 Mogul array. (See, importantly, Dave Thomas's special report in the July/August 1995 SKEPTICAL INQUIRER. See also The Roswell Report: Case Closed published by the United States Air Force [U.S. 1997].)

Continuing Saga

The news story died almost immediately, but the event continued as the subject of folklore and fakelore. In addition to the dubious "memories" of aging Roswellians, there emerged amateurishly forged government-conspiracy documents[1] and a hoaxed "alien autopsy" film showing the purported dissection

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of one of the extraterrestrials allegedly recovered from the crash site (Nickell 2001, 118–121). Many have given free rein to their imaginations (see figure 1).

Enter Robert Galganski. A crash-safety research engineer and a Roswell buff, he offered a paper, "The Roswell Debris Field: An Engineer's Perspective" (published by Fund for UFO Research). In it, Galganski (2005, vii) used "existing documentation" in order "to calculate a very liberal quantity—that is, significantly more than one would expect—of debris that [Mogul] Flight 4 could have deposited on the ranch pasture."

Essentially, Galganski examined the Roswell controversy quantitatively, focusing on the amount of the debris. As he summed up, "These quantitative and visual findings provide compelling support for the conclusion, based on logic and common sense, which many other researchers have reached: Project Mogul Flight 4 did not cause the Roswell debris field" (Galganski 2005, vii).

The Test

Galganski based his findings on two main sources. One was Major Jesse Marcel, who in 1947 was the Roswell Army Air Field staff intelligence officer. The other was Mac Brazel, the rancher who discovered the crash site. As Galganski concedes, however, the two descriptions were "markedly different" (2005, vii).

Indeed, Marcel—recalling more than thirty-two years later—stated that the field was ". . . three-quarters of a mile long and two hundred to three hundred feet wide," whereas Mac Brazel described the debris as only (in the reporter's words) "scattered over an area about 200 yards in diameter" ("Harassed rancher" 1947).[2] After making numerous assumptions and performing myriad calculations, Galganski determined that the field would have been covered by the wreckage so sparsely that it could not "honestly be called a 'debris field'" (2005, 28).

To test his conclusions, the production company for the Discovery Channel documentary recreated a Mogul-type array, crashed it, and assessed the resulting amount of debris. They chose a site in California at the edge of the Mojave Airport, and I was asked to monitor the experiment. (The experiment took place the next day, December 20, 2006, and the documentary aired February 22, 2007.)

The crew, including a Hollywood special effects technician, recreated one-half of a Mogul array. For this, they inflated a dozen four-foot balloons, attaching one after the other to a tethered line, then strung on three box-kite-like replica radar reflectors (consisting of sticks and foil-covered paper—figure 2), and finally attached a parachute carrying a simulated radiosonde (instrument package). Then a rifleman used an airgun to burst each balloon in turn until the wreckage lay scattered on the ground. Galganski thought the debris was insufficient to match that at Roswell in 1947, but since the array had been kept on a tether, the debris naturally came down and littered a very limited area, only about 79 × 138 feet (figure 3). Had it been more broken up and scattered by the wind, I concluded, the results would have been dramatically different.

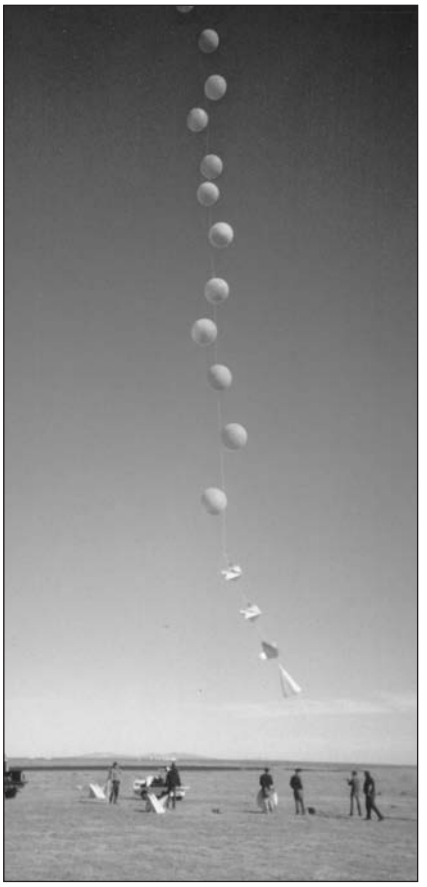

Figure 2. A replica of one-half of a Project Mogul spy balloon array was created for the Discovery Channel. (Photo by Joe Nickell)

Wrong Assumptions

We must recognize that Galganski is at pains to assume that a large wreckage area and a consequent amount of debris was needed to at least "lightly litter" the area. From this perspective, he believes that what crashed at Roswell was much, much larger than a Flight 4 Mogul balloon train. This seems a very poor way to make a determination. One wonders what Galganski would conclude from the size of the area strewn by debris from the U.S. Space Shuttle Columbia disaster (on February 1, 2003). Officials said, according to The New York Times, that "The grim fallout scattered along a path at least 100 miles long and 10 miles wide," (Halbfinger and Oppel 2003). Was a gigantic space shuttle involved?

In fact, it is Galganski (2005, 45) who assumes "a litter-filled region," not Mac Brazel. Brazel provided not only an estimate of the size of the area involved but also indicated the amount of debris. Brazel, Major Marcel, and a couple of others took the pieces to Brazel's home (a now-deserted house I visited with investigator Vaughn Rees in 2003—see figure 4). The Roswell Daily Record reported:

> According to Brazel they simply could not reconstruct it at all. They tried to make a kite out of it, but could not do that and could not find any way to put it back together so that it would fit.
>
> Then Major Marcel brought it to Roswell, and that was the last he heard of it until the story broke that he had found a flying disc.

The newspaper article continued:

> Brazel said that he did not see it fall from the sky and did not see it before it was torn, so he did not know the size or shape it might have been, but he thought it might have been about as large as a table top. The balloon which held it up, if that was how it worked, must have been about 12 feet long, he felt, measuring the distance by the size of the room in which he sat. The rubber was smoky gray in color and scattered over an area about 200 yards in diameter.

The article went on to add:

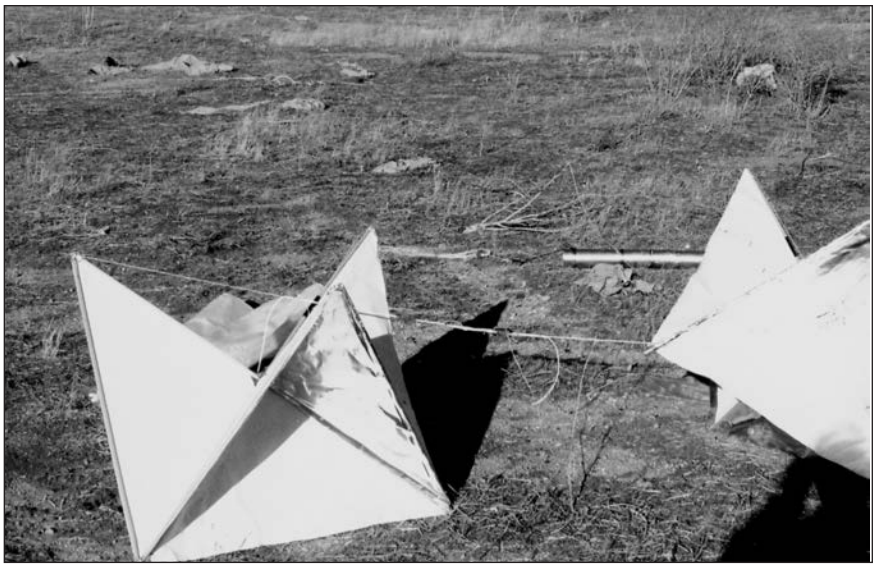

Figure 3. Shot down, the device, having been tethered, left debris less broken up and scattered than otherwise would have been expected. (Photo by Joe Nickell)

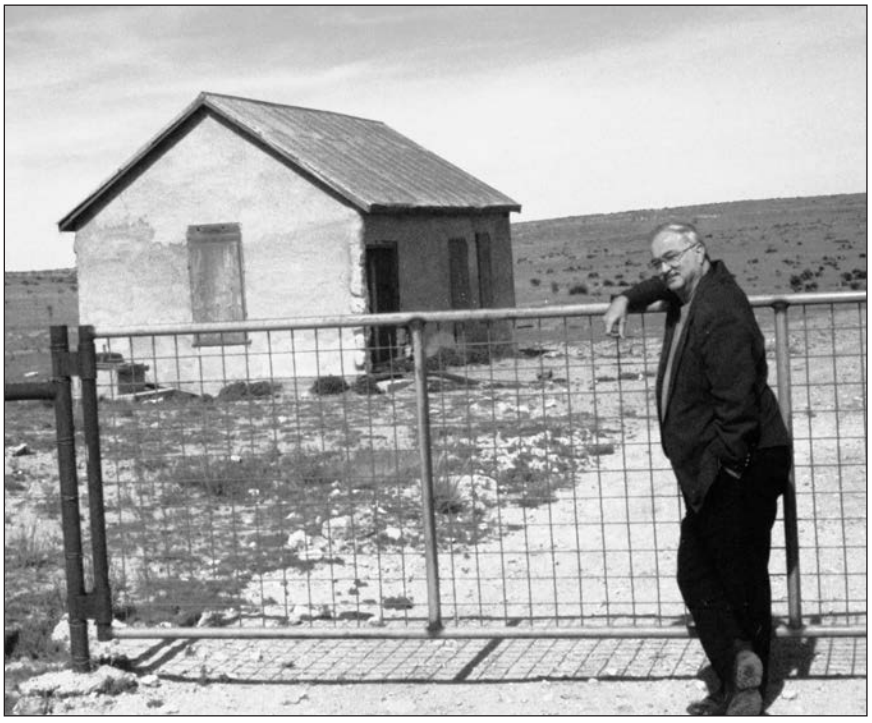

Figure 4. The author at the now-deserted old farmhouse on the Foster ranch where Mac Brazel lived when he discovered the infamous Roswell wreckage. (Author's photo by Vaughn Rees)

> When the debris was gathered up the tinfoil, paper, tape, and sticks made a bundle about three feet long and 7 or 8 inches thick, while the rubber made a bundle about 18 or 20 inches long and about 8 inches thick. In all, he estimated, the entire lot would have weighed maybe five pounds.

A small and lightweight "disc" indeed! Clearly, what Brazel described was not even an entire Mogul array. The article added that "No strings or wire were to be found but there were some eyelets in the paper to indicate that some sort of attachment may have been used" ("Harassed rancher" 1947).

Photographs made of the wreckage when it was displayed to the news media (U.S. 1997, 7) show that the wreckage was consistent with Brazel's description and that it in turn matches Project Mogul's Flight 4 balloon/radar-reflector array.

From the evidence, we see that not only did balloons burst near Roswell in 1947 but that conspiracy theorists have had their fanciful flying-saucer bubbles burst as well.

Acknowledgments

Thanks to Vaughn Rees and Tim Binga for their assistance with this and earlier Roswell research, as well as the entire crew I worked with in the Mojave Desert, assembled by Creative Differences Productions, Toronto.

Notes

1. These "MJ-12 documents" fooled arch Roswell-conspiracy writer Stanton T. Friedman, who has continued to tout the bogus documents (Friedman 1996). See Nickell and Fischer 1990.

2. Among other sources were two that gave estimates ranging from only "about 20 feet square" (a Capt. Sheridan Cavitt, whose testimony Galganski finds dubious) to debris being "scattered over a square mile" (given in an Associated Press article). See Galganski 2005, 24–25.

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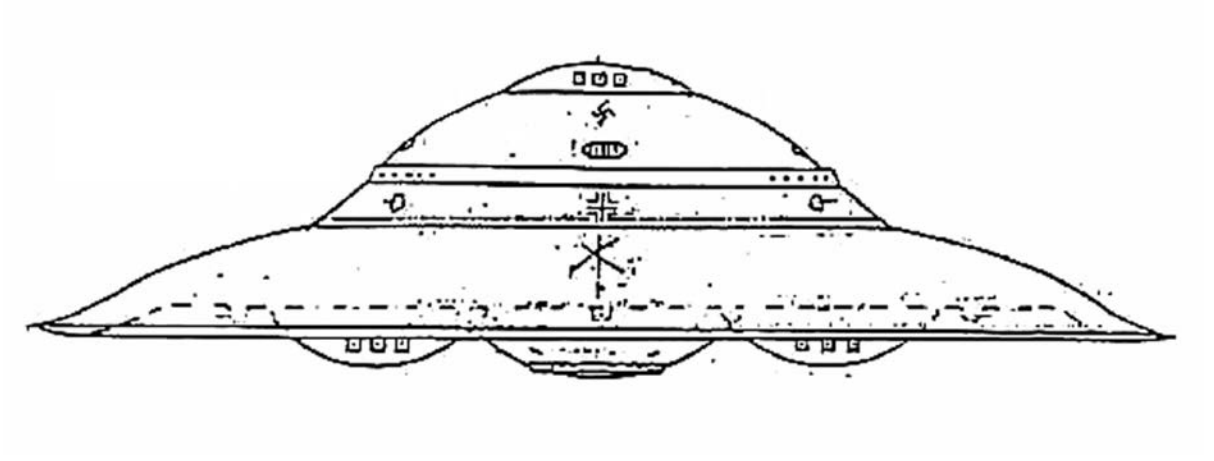
Nazi Saucers and Antigravity

For decades there have been rumors about alleged "Nazi flying saucers," supposedly developed during the closing days of World War II, too late to turn the tide of the war. In some versions of the story, Hitler and some of his top officers used these saucers to escape to a secret base somewhere in the Antarctic, from which they have been plotting a comeback to once again try to take over the world. Never has there been anything resembling actual proof of Nazi saucers, just claims and rumors. Dr. Michael Salla, founder of UFOlogy's "exopolitics," gave a talk on Nazi saucers to the International UFO Congress in 2005 that was long on wild claims but very short on evidence (see this column, July/August 2005, available online at http://tinyurl.com/5g3glp).



Now the Nazi saucer claims have been taken up again, this time by the well-known conspiracy author Jim Marrs. His first conspiracy book was Crossfire: The Plot That Killed Kennedy. That one was so successful that he followed it up with several more, claiming conspiracies about extraterrestrials, secret societies, psychic warfare, 9-11 "truth," etc. His latest book is The Rise of the Fourth Reich, which claims that unrepentant Nazi sympathizers are secretly and steadily working to create a Fourth Reich here in the United States.

So far, this is just a standard paranoid, political rant. But Marrs has more interesting yarns to spin. He talks about a rumored secret "Nazi bell" (Die Glocke) that may have powered the Nazi saucers. The "bell" was first written about by UFOlogist Nick Cook in his 2001 book, The Hunt for Zero Point: Inside the Classified World of Antigravity Technology. As Marrs explains in an interview on Earthfiles, "It was simply called the bell because it was kind of a bell-shaped object. This object had an outer chamber and inner chamber and created electromagnetic energy fields that

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An artist's rendition of a Nazi saucer.

were set into rotation movement. Then one layer would rotate clockwise; the other layer would rotate counter-clockwise. In doing this, it increased the power and the efficiency of this energy field generator. In doing so, there were some very unusual properties. Around the bell, plants either blossomed and grew, or withered and died; people would die around this thing."

But that's not all the bell reportedly did. It is supposedly derived from extraterrestrial technology and has been associated with time travel, UFO sightings, etc. Marrs says, "What seems to have happened in an early day version of remote viewing, or perhaps what we would call channeling, [the Nazis] did come in contact with non-human intelligences, which this contact then provided them with clues—if not direct knowledge—of technology that was far beyond what the Allies were able to come up with."

"The bell" has now become a hot topic among seekers of "Zero Point" free energy, antigravity, etc. According to Cook, the bell was about twelve feet high and nine feet in diameter. It was composed of two high-speed, counter-rotating cylinders filled with a purplish, liquid-metallic-looking substance that was supposed to be highly radioactive, code-named "Xerum 525." The scientists and technicians who worked on the bell and who did not die of its effects were wiped out by the SS at the close of the war, and the device was removed to an unknown location. It may have been loaded aboard a Nazi submarine and taken to a secret base in Antarctica.

Cook's The Hunt for Zero Point is a classic example of how to spin an exciting yarn based on almost nothing. He visits places where it is rumored that secret UFO and antigravity research is going on, such as "Area 51," and writes about what he feels and imagines, although he discovers nothing more tangible than unsubstantiated rumors. He tells an exciting story about his hotel room near Edwards Air Force Base being broken into in the middle of the night by SWAT-like forces who threatened him with automatic weapons, then he gives us the letdown—it was just his imagination. He writes that the Northrop Grumman B-2 stealth bomber is likely powered by an "electrogravitic drive system," having been assured by an aviation expert that the thrust of that aircraft's engines were insufficient to lift the B-2 off the ground. Thus, facing a conundrum similar to the famous-if-apocryphal "bumblebee flight problem," he concludes that the B-2 must employ antigravity technology to shed some of its weight in order to get off the ground and speculates whether there is a switch somewhere on its instrument panel to flip over to "antigravity cruise mode."

The story of the Nazi bell has been taken up in a big way by American Antigravity (AAG), a group dedicated to promoting devices and experiments that supposedly demonstrate antigrav-

ity effects. I have earlier written about American Antigravity's "lifters"—devices that unquestionably do rise into the air (see my "Levity with Lifters," SI, March/April 2003, available online at http://tinyurl.com/57n3hv). However, they operate by using electric charges to set up an ion wind downdraft, require connection to a large external power supply far too heavy to lift into the air, and will not work in a vacuum.

The Nazi bell is being touted by American Antigravity as "Einstein's antigravity," because John Dering, a physicist who researches far-out stuff, speculates that "the German WW-II research was intended to create a powerful propulsion effect by engineering application of Einstein's Unified Field Theory (UFT) equations." This is also said to be linked to the Philadelphia Experiment, an alleged Word War II-era project in which the Navy supposedly rendered a destroyer escort ship invisible and possibly even teleported it to Norfolk and back. Dering claims to have seen antigravity effects in which mercury fell up in certain unspecified industrial machinery, and he speculates that the Nazi bell may have operated using mercury as a medium.

Igor Witkowski, a Polish journalist specializing in military technology, has written a book called Truth about the Wunderwaffe (German "Wonder-Weapons") that was one source for Cook's claims. However, if you want to read these marvelous revelations, his book will set you back $80 (which, it is suggested on the AAG site, is "certainly worth it.")

Joseph P. Farrell, author of The SS Brotherhood of the Bell, ties in the Nazi bell with the alleged UFO crash in Kecksburg, Pennsylvania, in December 1965, largely because of the reportedly similar shape of each. The alleged Kecksburg "UFO crash" has been definitively identified as the Great Lakes Fireball of December 9, 1965, widely seen across several states and Canada (see this column, January/February 2007). However, UFOlogists have never been inclined to let a few facts ruin a good story. According to Farrell, the Kecksburg bell UFO was later seen at Wright-Patterson Air Force Base, which also allegedly received the bodies of the dead aliens recovered from Roswell. His book costs $17, considerably less than Witkowski's, and is a bargain since each are equally vacuous when it comes to proving their speculations. Farrell suggests that the lack of real evidence for claims about the bell is because "someone, somewhere, is using 'active measures' including so-called 'wet operations' to maintain the secrecy surrounding the technology." Apparently, if you delve too deeply into its secrets, someone, somewhere is likely to rub you out. . . . Farrell suggests, concerning the Apollo program, that "there may have been a hidden or alternative technology involved in the Lunar Excursion Module (LEM) that got us off the Moon," since "I don't really see the signatures of a rocket taking off from the Moon in those films of the LEMs taking off. It doesn't look like an acceleration that is geometric enough to be a rocket; it just sort of "pops up" and off it goes at more or less—it looks to me—like uniform velocity." But he admits, "I haven't actually done any measurements or not [sic] to see if this is the case."

Yet another amazing antigravity claim has just popped up on the Web site of our friend Richard Hoagland, who gained fame with his "face on Mars" claims. Hoagland claims to reveal "Von Braun's 50-Year-Old Secret": that when America's first satellite went into orbit in 1958, Explorer I went into a higher-than-expected orbit—not because of poor control of its Jupiter C rocket engine but because of an "antigravity effect" somehow operating on that satellite (see www.enterprisemission.com/Von_Braun.htm). However, the U.S. government ordered an "immediate cover-up" of this discovery, and Hoagland was the first person in the past fifty years to uncover it. In January of 1959, a Soviet-launched lunar probe missed the moon completely and went into a solar orbit, also supposedly because of antigravity effects. Two months later, the U.S. launched Pioneer 4, which also missed the moon. He ties this all together with a supposed discovery that a swinging Foucault pendulum reverses itself during a solar eclipse, defying all known laws of physics (and the eclipse need not even be total). Apparently, antigravity forces stopped bothering satellites launched after about 1960, supposedly because Von Braun's discoveries allowed NASA to compensate for them.

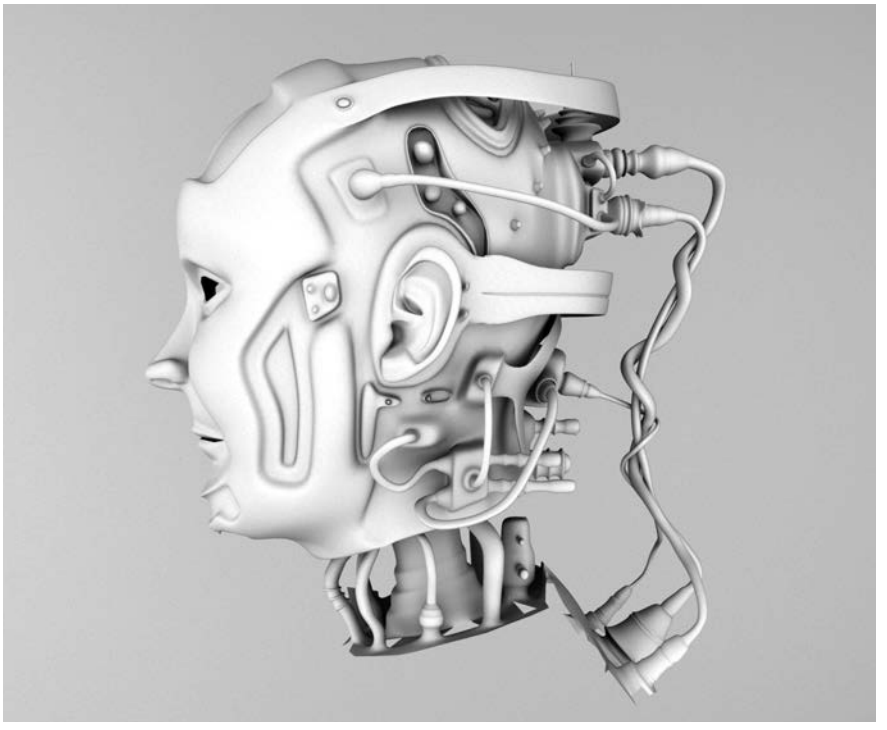
As for photos of the Nazi saucers themselves, while for years there were no photos to be seen—only drawings—an entire page of them are now on display at www.eyepod.org/Nazi-Disc-Photos.html. You can decide for yourself if they came from some recently opened secret Nazi archive or from Photoshop. □

UFOlogist Nick Cook claims that the scientists and technicians who worked on the bell and who did not die of its effects were wiped out by the SS at the close of the war, and the device was removed to an unknown location. It may have been loaded aboard a Nazi submarine and taken to a secret base in Antarctica.

Experimental Philosophy, an Oxymoron?

Philosophy is often dismissed by scientists as "just" armchair speculation, as if scientists themselves don't actually have a high degree of regard for armchair speculation when they are the ones doing it (think of mathematicians or theoretical physicists). But what if philosophers took the challenge seriously and started doing empirical work? This is what has happened in the small but growing field known as experimental philosophy, an area so new that all of its published papers appeared after 2000.

The basic idea behind experimental philosophy (which should really be called empirical, not experimental, because of the methods used) is that philosophers often make assumptions about common intuitions, but they never back up those assumptions with verifiable evidence about what people's intuitions are, in fact, like. For instance, experimental philosopher Joshua Kobe (Princeton University) is interested in so-called theories of action, that is, philosophical analyses of the intentionality or lack thereof of people's actions. Kobe got off his armchair and started asking people how they perceived the intentions of a hypothetical CEO making decisions about his company that might influence the environment. Kobe gave his subjects two versions of his story: one in which the actions were predicted to, and in fact eventually did, harm the environment and a second version in which the actions were predicted to, and eventually did, help the environment.



In both cases, the story stated that the CEO claimed to be interested only in the bottom line of the company and that his decision was not influenced by the perceived risks (or benefits) to the environment. The surprise came when Kobe asked people whether they thought the CEO was morally responsible (or praiseworthy) for the effects on the environment. Most people concluded that if the environment was helped, this was an accidental byproduct of the CEO's business decision and no praise was called for, but in the scenario in which the envi-

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ronment ended up being harmed, most subjects responded that the CEO acted deliberately in spite of knowledge that such harm would result and was therefore culpable. In other words, people seemed to be inclined to blame environmental damage on the executive but were reluctant to praise the same individual when environmental benefits accrued from his actions.

What are we to make of these admittedly intriguing results? Experimental philosophers take the position that polling people tells us about their actual, as opposed to assumed, intuitions, and that philosophers ought to take notice and modify their theories accordingly. Critics of experimental philosophy, such as Antti Kauppinen (University of St. Andrews, Scotland), respond that the "intuitions" to which philosophical analysis refers are those of people trained in philosophy, people who are practiced at reflecting on the concepts at issue (say, moral and intentional action). Polling nonprofessionals, therefore, is quite beside the point.

Part of my professional activity as a scientist and philosopher is devoted to getting the two sides to talk to each other so that more scientists appreciate the value of philosophical insight and philosophers take into account the findings of empirical science. I have to admit, however, that the sort of research carried out by Kobe and other experimental philosophers sounds a lot like social science, not philosophy. Perhaps it can be construed as philosophically informed social science, and it is certainly valuable to both philosophers and social scientists in the same way in which, say, surveys concerning the public understanding of scientific ideas is valuable to scientists and science educators. But is it philosophy?

Let us consider a different area of philosophical discourse to illuminate the debate about experimental philosophy more clearly. Over several centuries, philosophers have developed sophisticated arguments for and against the existence of God, from Anselm of Canterbury's famous ontological argument (in which God's existence was deduced a priori from first principles) to modern versions of the argument from design so popular among evolution deniers. My understanding of this area of philosophical discourse is that the arguments against the existence of God have won the field, and few if any serious philosophers still engage in the debate at all.

Now imagine if an experimental philosopher were to say, "Wait a minute! Perhaps we should ask people what their intuitions are about the validity of the ontological or the design argument." Clearly, that would provide us with much food for thought about people's theological opinions and their grasp of the arguments in question, but such polling certainly would not qualify as philosophy. Philosophy is a particular (perhaps even peculiar) intellectual activity in which people engage in rational analysis of concepts and their logical consequences. It requires rigorous training in a variety of disciplines, including awareness of logical fallacies, and original contributions to philosophy demand a deep understanding of and appreciation for the history of philosophical debate. It is inconceivable, for instance, for an ethical philosopher (meaning someone who is interested in ethics, not a particularly irreproachable individual) to write a paper in that field as if he had never heard of Aristotle, John Stuart Mill, and Immanuel Kant, to mention just a few. But most people outside of philosophy departments will simply not be in a position to discuss ethical theory with the sophistication of a philosopher, having little or no familiarity with the advances made over the past two millennia. Again, asking what people's moral intuitions are is intrinsically interesting—and can affect social policy—but it doesn't have much to do with the professional field of ethical philosophy.

It is inconceivable, for instance, for an ethical philosopher (meaning someone who is interested in ethics, not a particularly irreproachable individual) to write a paper in that field as if he had never heard of Aristotle, John Stuart Mill, and Immanuel Kant, to mention just a few.

As far as I am concerned, therefore, I look forward to more results from the efforts of Kobe and his colleagues, but I can't wait to get back to my armchair and do some more thinking about what my intuitions happen to tell me next. □

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Experimental Philosophy blog available online at http://experimentalphilosophy.typepad.com.

Experimental Philosophy Page available online at http://www.unc.edu/~knobe/ExperimentalPhilosophy.html.

Search for the Ark

Along with the Holy Grail, the Ark is the most sought after and elusive of relics. Built of Shittim wood and pure gold to hold the Ten Commandments that were carved in stone by God and given to Moses, the Ark of the Covenant is first referred to in the Old Testament. The Hebrew people carried it on their shoulders during their journey in the desert and able to part the River Jordan. It's the Ark that destroys the walls of Jericho and allows the Hebrew people to conquer the city.

The Bible implies that the Ark was figuratively last seen in the sky. "Then God's temple in heaven was opened, and within his temple was seen the Ark of his Covenant." Some believe that the Ark really existed and are convinced that it is hidden on Earth.

sor of Jewish Studies at the University of Georgia. "There is not even any comment such as 'And then the Ark disappeared and we do not know what happened to it' or 'And no one knows where it is to this day.' The most important object in the world, in the biblical view, simply ceases to be in the story." Actually, there is a quite detailed description in the Old Testament about

Some believe the Ark has supernatural powers; some see the Ark, the Ten Commandments, and the frequent conversations that Moses had with God as proof of ancient contact with more evolved beings, probably extraterrestrials.

finally deposited it inside the Temple of Solomon in Jerusalem.

According to tradition, the Ark, as a physical manifestation of God, possessed extraordinary power able to evoke disasters and defeat enemies. It is thanks to the Ark, for example, that Joshua is

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The Lost Ark

According to common interpretation by biblical scholars, the Ark was destroyed in 587 BC, when Babylonian troops led by King Nebuchadnezzar conquered Jerusalem and destroyed the Temple. Some researchers, however, do not accept this interpretation.

"There is no report that the Ark was carried away or destroyed or hidden," says Richard Elliot Friedman, profes-

the Philistines (enemies of the Israelites) carrying the Ark away: "Then the Philistines took the ark of God and brought it from Ebenezer to Ashdod. When the Philistines took the ark of God, they brought it into the temple of Dagon and set it by Dagon" (1 Samuel 5: 1–5).

Among various hypotheses, there are those who think that the Ark was taken from the Temple before the arrival of the Babylonians. In the First Book of Kings, we read: "And it came to pass in the fifth year of king Rehoboam, that

Shishak [Shoshenq I, founder of the twenty-second dynasty] king of Egypt came up against Jerusalem: And he took away the treasures of the house of the Lord, and the treasures of the king's house; he even took away all: and he took away all the shields of gold which Solomon had made" (1 Kings 14:25-26, King James Bible).

And if Shoshenq I took away the treasures, perhaps he took the Ark as well. That premise inspired George Lucas and Steven Spielberg when they wrote Raiders of the Ark in 1981, which popularized Indiana Jones as the adventurous archeologist engaged in finding lost relics. When Shoshenq was king, the capital of Egypt was in Bubasti on the Nile delta, which was near Tanis. In the Spielberg film, Indiana Jones finds the Ark in Tanis.

Others have imagined epic adventures in which Templar Knights found the Ark, hid it in a secret underground chamber below Solomon's Temple, and then took it, along with many other treasures and relics, to some mysterious locale like Chartres Cathedral in France or Rosslyn Chapel in Scotland.

Perhaps more realistic is the discovery made by James Bruce, one of the earliest explorers of Africa, around 1760. Bruce found a document from which it was possible to infer a possible link between Ethiopia and the Hebrews. According to this text, the Ethiopian Queen of Saba (or Sheba) had a child by King Solomon named Menelik. According to legend, Menelik stole the Ark from the temple and took it to Ethiopia around 950 BC.

This piece of information remained relatively unknown until English journalist Graham Hancock decided to investigate it. "The idea that the Ark of the Covenant could be hidden in Ethiopia stimulated my imagination and my curiosity," says Hancock.

In Axum, Ethiopia, there is a temple that allegedly houses the Ark. "There were many facts that needed explaining. The fact that there existed a population of Hebrews in Ethiopia practicing the Old Testament, the fact that a Christian country worshiped a pre-Christian relic, the fact that there was no other country that claimed to own the real Ark. . . . [These are] mysteries for which I wanted to find the answers," says Hancock.

He researched the legend of the Ark for two years and wrote a 600-page book, The Sign and the Seal: The Quest for the Lost Ark of the Covenant. His conclusions, however, are less than impressive. At the end of his investigation he found himself chatting with the guardian of the temple in Axum, who forbade him to enter. No one, except for the guardian, could see the Ark. And so the only proof of the existence of the Ark rested on the testimony of the guardian.

Mystery fosters curiosity, and owing to the fact that no one can see the Ark in Axum, Hancock made a fortune thanks to mere speculation. Perhaps in the temple there is a replica of the Ark built according to biblical descriptions, but not even this is certain.

An Electricity Storage Device?

Apart from the possible resting place of the Ark (assuming it really existed), another question that many have tried to answer is what this mysterious object could be. Some believe the Ark has supernatural powers; some see the Ark, the Ten Commandments, and the frequent conversations that Moses had with God as proof of ancient contact with more evolved beings, probably extraterrestrials. Erik Von Däniken, for example, was convinced that the Ark was some kind of radio receiver through which aliens pass-

ing in spaceships communicated their will to the prophet. "I seem to remember," says Von Däniken, "that the Ark was often surrounded by flashing sparks and that Moses made use of this 'transmitter' whenever he needed help and advice. Moses could hear the voice of his Lord but could not see his face."

There is no mention of flashing sparks in Exodus, and Von Däniken eventually changed his mind. He later claimed that maybe the Ark was a miniature nuclear reactor. He suggested that the machine stored water from the night dew, then green algae (chlorella) was added, and manna came out of the machine. The reaction needed to form manna was radiation.

The thought that the Ark was some kind of anachronistic technological artifact is quite appealing to some. Two British enthusiasts, Michael Blackburn and Mark Bennett, researched the topic (Fortean Times, 2006). The Bible says that those who carried the Ark had to be dressed in a specific way and that no one could touch it. In one instance, it appears that the Ark was in danger of falling from the cart, and a man named Uzzah jumped forward in order to stabilize it—he died instantly.

What if the Ark, wondered Blackburn and Bennet, was no less than a primitive electrical condenser? The description in the Bible (a wooden box covered in gold with two golden cherubs facing each other on the lid with wings outstretched and almost touching) reminds one of the Leyden Jar, a very simple device that accumulated and stored a large amount of static electricity that when discharged could deliver a very powerful jolt. "The cherubim would act as the positive and negative terminals," say the two authors. "Using the example of the 500 gram, coffee-jar-sized Leyden Jar, and assuming that this could store a charge of approximately 200 volts, the Ark would have held the equivalent of 125 such jars, giving it a comparable, if not greater, potential voltage, as well as, more importantly, allowing for a much longer discharge time," Blackburn and Bennet explained.

All of this is interesting speculation, even though such a hypothesis raises more questions than it answers. How did the ancient Hebrews discover the properties of static electricity? How could they electrically charge the Ark before taking it into procession? And what could be the use of a similar object, apart from producing a strong electrical discharge?

An Invention of the Ancient Egyptians?

The Ark, in fact, should be seen not as a real object but as a symbol, say modern historians of the Old Testament. "I see an enormous disparity between the historical fact and the narration of it," says Gianantonio Borgonovo, teacher of Exegesis of the Old Testament at Catholic University in Milano, Italy. "Every narration must have a link to some historical fact, but here there is none. What I mean is that when there was the Ark nobody talked about it, now that there is no Ark everybody talks about it."

It is a fact that no biblical-era figure writes about the Ark except for the prophet Jeremiah, "But his text had been rewritten and corrected a century later, when the Temple had already been destroyed. Another contemporary, Ezekiel, could have talked about the Ark but didn't," explains Borgonovo.

Borgonovo continues, "probably, there never was in Solomon's Temple an object called 'The Ark of the Covenant.' It is just a highly symbolic image that, not accidentally, becomes an object of reverence for Christians, which contains the Ten Commandments, some manna, and Aaron's staff. So, the question now becomes: Why choose the Ark as a symbol? This is a likely consequence of the Egyptian origins of the Hebrew tradition. It was Tutankhamun, in XIV century BC, who gave the most beautiful description of the Ark."

The link between Apet's feast and the Ark of the Covenant is clear if one believes that ancient Egyptians used to carry their gods in procession inside the miniature boats.

It was the forgotten pharaohs who depicted the possible origin of the Ark's tale on the decorated walls of the East-facing pillars of the palace of Ramses II in Luxor. There one can still see a symbolic representation of the feast of Apet, an Egyptian holiday that announced the culmination of the flooding of the Nile, on which the New Year's harvest depended. On the wall there is a drawing that appears to show an ark carried on long poles supported by the shoulders of a group of priests. This, however, is not a box but a miniature boat carried by sedan-bearers, as in the Biblical tradition.

The link between Apet's feast and the Ark of the Covenant is clear if one believes that ancient Egyptians used to carry their gods in procession inside the miniature boats. During Apet's feast, then, "arks" contained small stone representations of the pantheon of Egyptian gods, just like the Ark of the Hebrews contained the stones of the Ten Commandments, symbol of the God of Israel. □

SKEPTICAL INQUIREE
BENJAMIN RADFORD

XanGo Juice: Miracle or Myth?

Q: What's the deal with XanGo juice? It costs $40 a bottle, and according to several anecdotes I've heard, cures just about any disease. Is there any research on the efficacy of this stuff ?

M. Dunlavy

A: XanGo is the trademarked name of a juice drink made from the fruit of the mangosteen, a tropical evergreen tree. Many people claim a wide variety of miraculous health benefits from the drink, supposedly due to the fruit's high antioxidant content.

Is XanGo effective? Absolutely. XanGo juice has proven very effective in making money for people in the top few layers of its manufacturer's pyramid marketing plan. Never underestimate the power of multilevel marketing, especially when combined with sensational health claims, the word natural, and an exotic moniker like XanGo! XanGo has sales of well over $1 billion, with a reported 700,000 distributors worldwide.

Does XanGo provide health benefits or effectively treat ailments? Not so much. Like most dubious health products, XanGo relies heavily on anecdotal testimonials and peer marketing while avoiding scientific testing that would validate their claims.

In a DVD that I acquired from a XanGo marketer, pitchman "Dr. John Edwards" seems at times both effusive and curiously cagey about XanGo's benefits: "We do not claim cures," he said,

"but we have seen a lot of tremendous results. We have seen some amazing things, we leave it at that. And where leukemia and cancers are concerned, I have seen in my own practice tantamount to that—again, I'm being very careful in my choice of words. . . . We have seen patients who have come in with full-blown leukemia and cancers have gone into remission in less than two months on this fruit! That's unheard of!" (Edwards 2006).

Perhaps Edwards's caution is due to the warning his company received from the Food and Drug Administration in 2006 for making baseless medical claims. According to Stephen Barrett (2005) of Quackwatch, "Some marketers claim that XanGo juice can treat diarrhea, menstrual problems, urinary tract infections, tuberculosis, and a variety of other conditions. There is no reliable scientific evidence to support these claims." The fact is that there have been no clinical trials of mangosteen's benefits. The American Cancer Society examined mangosteen juice and concluded that there is no evidence it is effective as a cancer treatment or cure. The Mayo Clinic also weighed in on the issue, stating in 2005 that there are no published clinical trials showing any evidence that either the mangosteen fruit or XanGo juice is effective in treating any ailment or disorder.

While XanGo juice (like any other fruit juice or blend) probably won't hurt you, it won't help you much either. As long as you don't mind paying $40 for a 750 ml bottle of fruit juice, knock yourself out.

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UFOlogy 2009: A Six-Decade Perspective

Waves of UFO sightings may be a thing of the past, but interest in UFOs is stronger than ever. Credulous cable-TV programs and sensationalized radio talk shows have replaced books and news media in spreading excitement and misinformation to millions. The UFO movement keeps changing, and today the outlook is largely conspiratorial.

ROBERT SHEAFFER

Belief in UFOs and visitors from other worlds remains high today despite decades of sensational claims unaccompanied by proof. A child born at the dawn of the UFO era becomes eligible to collect Social Security this year. The face of UFOlogy has changed much in these past sixty-two years, but it has not faded away as some rationalists naively assumed it would. Indeed, its mutability is indicative of the strength of the myth, not of its weakness. Here I examine how the UFO movement has changed over the years and what it has become today.

In The Beginning (1947–1973)

In the beginning there were sightings, and those sightings began with private pilot Kenneth Arnold on June 24, 1947. As soon as news stories appeared reporting Arnold's claim that he saw nine airborne objects that flew "like a saucer if you skip it across the water," others began reporting seeing the "saucers" too (a curious development, since Arnold did not say that the objects looked like saucers—they looked like boomerangs, he said—but skipped like saucers, a subtlety lost in the public's imagination). Soon sightings of "saucers" were pouring in from all around the country and from around the world. Sightings occurred in waves, which appeared to be fueled by media reports. A wave would typically start in one location, but as soon as news reports began to carry the story of the localized excitement, sightings activity would pick up nationally. Great waves of UFO sightings occurred in 1947, 1949, 1952, 1957, 1965–67, and 1973.

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With the benefit of hindsight, we now know that the last large-scale national wave of UFO sightings occurred in the fall of 1973. The reasons for this are not clear. One common-sense explanation is that after more than twenty-five years of sensational sighting reports ultimately leading to nothing tangible and no new evidence, the public's fascination with saucer sightings was wearing out. One prominent UFOlogist, the late Karl Pflock, later suggested quite seriously that extraterrestrial visitors actually did arrive around 1947 but departed sometime after 1973, and all subsequent UFO sightings were bogus. My preferred explanation is that this was right around the time that the majority of U.S. homes acquired color television, resulting in fewer eyes directed skyward, in addition to the ennui factor. Whatever the reason, the "buzz" was gone for mass waves of saucer sightings. Individual and even localized clumps of sightings continued to occur and to be reported in the news, but somehow they were no longer contagious. "Lights in the sky" no longer were a "shiny new thing," and the public required something else to generate excitement about UFOs.

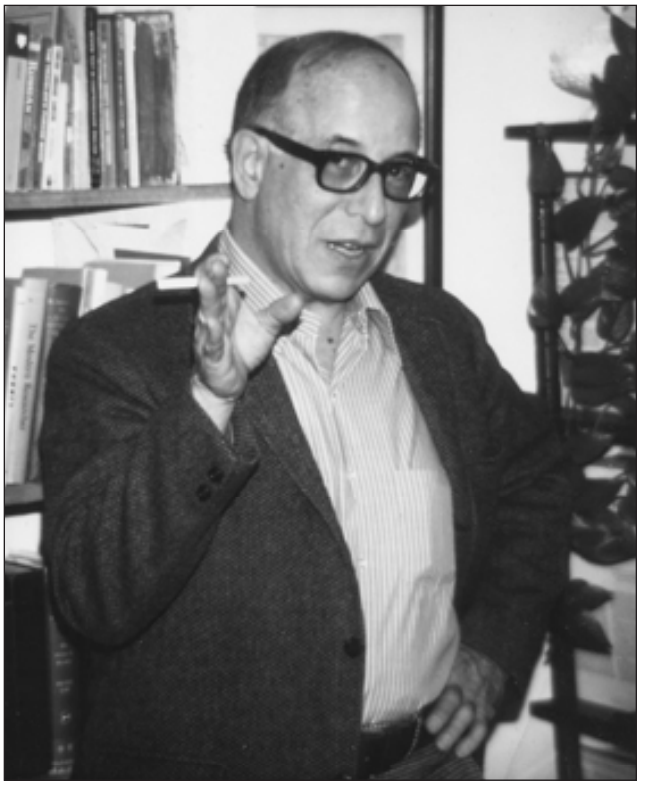
Photo: Robert Sheaffer

The late Betty Hill poses with a bust of the alien creature she says abducted her.

Abductions Gradually Replace Sightings (1966–1995)

Something genuinely new under the UFO sun occurred in 1966: the publication of The Interrupted Journey by John G. Fuller, a book detailing the alleged UFO abduction in rural New Hampshire of Betty and Barney Hill. The book reads like a thriller, telling the tale of an interracial married couple driving rural roads late at night, seemingly pursued by a UFO.

Upon returning home, Betty began having nightmares about being abducted by aliens. The Hills belatedly concluded that there was "missing time" and came to believe the abduction dreams may have reflected reality. Barney was under much stress prior to the "abduction" and got worse afterward, so the Hills sought therapy from a well-known psychiatrist, Dr. Benjamin Simon. Under hypnosis, they each told a UFO abduction story that largely matched Betty's nightmares (which Barney had heard her repeat many times).



Photot: Robert Sheaffer

The late Philip J. Klass, one of the leading UFO skeptics.

The Hills' story became a sensation, serialized in Look magazine, and was made into a TV movie, The UFO Incident. Soon others began making similar abduction claims. The famous Travis Walton abduction story, depicted in the movie Fire in the Sky, aired a few weeks after The UFO Incident aired. Typically, these abduction stories followed a general pattern: You are driving in a rural area at night. You see a light in the sky that seems to be coming closer. You become frightened, and you are unable to recall exactly what happened next. A UFO researcher helpfully puts you under hypnosis, and you suddenly recover repressed memories of an alien abduction. The paradigm of the Hills' abduction prevailed during the 1970s. Persons out on lonely roads late at night risked, in addition to usual earthly perils, abduction by extraterrestrials.

The face of UFO abductology changed dramatically with the 1981 publication of Budd Hopkins's Missing Time. No longer was it necessary to venture out on lonely roads late at night; UFO aliens might come right into your own bedroom to snatch you, and you were helpless to resist. More books, articles, and TV shows followed, and soon a new paradigm for abductions was established. Aliens became a presence akin to ghosties and ghoulies and things that go bump in the night. You don't go out and stumble upon them—they find you. Moreover, the theme of repeated abductions, typically beginning in childhood, establishes a personal relationship between abductee and abductor. No longer is abduction simply the result of being in the wrong place at the wrong time, as was supposedly the case for Hill-style abductees. Instead, the abductee (overwhelmingly female) became a special kind of person with a mystical, cosmic-lifelong bond connecting her to unknown cosmic forces and beings. Most current abduction stories contain claims that rudely violate common sense even beyond the dubious idea of alien visitations. Often the creatures and the abductee are said to levitate or fly, to pass through solid objects, or to simply teleport themselves from one location to another. Hopkins has actually suggested, in all seriousness, that the aliens have the ability to make themselves and their victims invisible to better preserve the stealth of their operations. Given such claims, plus the frequently sexual nature of the abduction experience, the correlation with dream states and sleep disorders is obvious.

By the early 1990s, abduction mania had become a significant social phenomenon. It resonated well with other concurrent manias, including "recovered memories" of alleged Satanic Cult molestations, large-scale daycare molestations, etc. In 1992, CBS-TV ran an entire miniseries based on the claims in Hopkins's book Intruders, fueling widespread fears of sinister alien forces. Hopkins and his colleagues were so confident about the "scientific" status of their findings that in 1992 they arranged an Abduction Study Conference at MIT, hosted by physicist David Pritchard, in which I participated. While the participants were heavily slanted toward the pro-abduction view, there was a significant presence of skeptical professionals, and instead of solidifying the abductionists' claims, the conference highlighted their glaring weaknesses. Hopkins and his colleagues used the conference to first reveal details of a spectacular alleged multiple-witness abduction case that occurred late one night in Manhattan. This case became the subject of Hopkins's 1996 book Witnessed: The True Story of the Brooklyn Bridge Abduction. However, independent pro-UFO researchers were unable to confirm the ever-shifting

claims of multiple witnesses to the alleged abduction, and the abductees' ever-spiraling and ever-changing tales of encounters and intrigue became increasingly difficult to believe. The case that Hopkins and his colleagues had "bet the house" on, expecting it to finally establish their claims, ended up as a humiliation.

As might be expected, UFO abduction mania gradually faded as a force within UFOlogy. When abduction fever was rising, excited UFOlogists believed that it would finally deliver what UFOlogy has always wanted: validation of their personal belief in extraterrestrial visitors. But with the clear recognition that in the early 1990s the abductionists had taken their best shot and missed, UFOlogists gradually became disillusioned with abduction claims, realizing that they would ultimately fail to deliver. Thus, subsequent abduction claims failed to generate the same level of excitement. UFO abductions continue to be reported, alleged abductees continue to be hypnotized, and abductee-related support and research groups continue to operate. But abductees are seen today by many UFOlogists as something marginal and/or passé and are no longer looked to as the most promising area of UFO research.

"New Age" vs. "Science Fiction" UFOlogy

The major fault line in UFOlogy today is the division between what can be called "New Age" UFOlogy and what its proponents call "scientific" UFOlogy but is in reality "science fiction." Both are junk science and consistently ignore Occam's Razor (all other things being equal, the simplest solution is the best). Proponents fail to reconcile whatever hypotheses they invent with the rest of the body of established scientific fact. While the dividing line between the two groups is not hard and fast, and some UFO claims will contain elements of both, most major UFOlogists and UFO groups will fit clearly into one group or the other. "New Age" UFOlogy is dominated by women and "Science Fiction" UFOlogy by men, although you will find members of both genders in either group. We can think of members of the first group as fans of Oprah, the second as fans of the SciFi Channel. "New Age" UFOlogists often seem oblivious to the very idea that anyone should have to prove their claims, as if people are expected to simply accept unsupported accounts of extraterrestrial interactions (as is routinely done in such circles). If you expect to see any kind of proof, you need to hang out in different UFO circles.

"New Age" UFOlogy grew out of the "contactee" tradition of the 1950s, which is not based primarily on claimed "evidence" but instead on personal revelations. Contactees reportedly talk to extraterrestrials and receive cosmic wisdom from them, never offering convincing "proof" of such communications. Today's "New Age" UFOlogists largely claim to receive extraterrestrial messages via telepathy, channeling, dreams, or other subjective experiences, continuing the contactee tradition of having a personal relationship with the UFOs and their occupants. "New Age" UFOlogy often uses religious terms and themes, typically promoting the idea of an immanent cosmic, metaphysical change in the Earth and in peoples' lives: the "age of Aquarius," the "end of the Mayan Calendar," or some other ill-defined term that largely parallels the concept of the millennium in conventional Christian eschatology.

One well-known group falling squarely in the "New Age" UFO tradition is the Unarius Educational Foundation in El Cajon, California. Founded in 1954, the group's members believe that vaguely defined "energies" permeate the universe and claim they receive messages channeled from beings on other planets. They teach that "a new golden age for humanity" will begin as soon as we accept the wisdom and love of our space brethren.

"Science Fiction" UFOlogists claim the reality of visitations from extraterrestrials, or perhaps from "another dimension" or some other nebulous realm, based upon the weight of UFO sightings, photos and videos, alleged "trace cases," abductions, UFO crashes, etc. They eagerly offer "proof" when questioned, but it falls short by orders of magnitudes of the evidence required to support such extraordinary claims. They also typically fail to see how their claims contradict accepted science in very significant ways. When they do acknowledge the conflict, they insist it is time to invent a "new" science based upon the "evidence" of UFO incidents, not realizing the impropriety of having weighty, well-supported, time-tested scientific principles overturned by anecdotes, as if hummingbird feathers outweigh elephants. At the present time, the Mutual UFO Network (MUFON) is the largest and best-known organization of its kind in the U.S., primarily made up of "Science Fiction" UFOlogists.

UFO Crashes and Retrievals (1980–present)

A large part of contemporary "Science Fiction" UFOlogy consists of promoting one or more alleged UFO crashes. The first alleged UFO crash to gain widespread attention was in the 1950 book Behind the Flying Saucers by Hollywood writer Frank Scully. Based upon the tales told by Silas Newton and Leo GeBauer (said to be an inventor and a government scientist, respectively), it told of a saucer allegedly crashing near Aztec, New Mexico, in 1948, which contained the bodies of several dead aliens. But a thorough investigation by San Francisco newspaperman J.P. Cahn revealed that Newton and GeBauer were actually con men, fleecing investors and getting in trouble with the law, and that Newton's alleged sample of strange extraterrestrial metal was in fact plain aluminum.

Cahn's thorough debunking of the Scully book created a stigma against crashed saucer tales, and for decades such claims

all but disappeared. But after twenty years or so, the stench of the hoax in Scully's book had faded somewhat, and crashed saucer tales began to reappear. Veteran UFOlogist Leonard Stringfield began collecting such stories, and by the late 1970s was writing papers about Retrievals of the Third Kind. However, Stringfield never offered any proof for his claims, and his crashed saucer stories were little-known to the general public.

The earliest crashed saucer claim to make it big in popular culture was the alleged crash near Roswell, New Mexico, in 1947. However, the event was all but forgotten until it was resurrected by the 1980 book The Roswell Incident by Charles Berlitz (of Bermuda Triangle fame) and William L. Moore. You will look in vain for the word "Roswell" in any UFO book or article published before 1980, even if the subject is UFO crashes. A long series of sensationalist movies, TV shows, books, and so on have made Roswell a household name synonymous with UFO aliens. By the late 1990s, it was clear to anyone who cared about facts that the supposed Roswell crash involved a once-secret balloon-borne intelligence-gathering initiative called Project Mogul. But once such an event, fictionalized or not, becomes embedded in popular culture, it doesn't matter at all if the "evidence" is proven to be exaggerated, distorted, and/or fabricated. The Roswell legend will live on as long as there are claims of UFOs.

Today, the list of alleged UFO crashes has expanded far beyond the few familiar names like Roswell, Kecksburg, and Aztec. Claims about UFO crashes and their cover-ups make up a major part of contemporary UFOlogy. Since 2003 a "Crash Retrieval Conference" has been held each November in Las Vegas. It is organized by Ryan S. Wood, who claims that there have been at least seventy-four UFO crashes worldwide. All of these incidents have, of course, been successfully covered up by the country in which the unfortunate extraterrestrials fell.

UFO Photos and Videos

Photos of alleged UFOs have played a significant role since the early years of UFOlogy. In the 1950s, the famous contactee George Adamski produced a number of photos of what he said were the space ships of his friends from Venus, some of which were supposedly taken at close range and others using his telescope. However, Adamski's photos never looked convincing, and few outside his circle of followers doubted that they had been fabricated using quite ordinary objects.

Certain "classic" UFO photos continue to have a wide following today among "Science Fiction" UFOlogists who defend them energetically. The Trent photos from Oregon in 1950 tentatively passed muster with the famously skeptical Condon Report, whose analysis suggested that the object was distant. However, that analysis depends on certain assumptions, and if the photos were fabricated using a truck mirror with a reflective surface (as now seems likely), the assumptions are incorrect. The Brazilian Trindade Island UFO photos of 1958 have been widely touted even though the man who took them was a specialist in trick photography. The Lucci brothers' photos from Pennsylvania in 1965, famous for being used in many UFO books and magazines, have recently been confessed by one of the brothers to be hoaxes. In recent years, the most famous photos and video are those of the Phoenix Lights of 1997. Widely observed and photographed around the entire region, they undoubtedly represent real objects. And they were indeed real objects—flares dropped by an Air National Guard unit training nearby. (UFO photos typically are taken by—and the object only seen by—one individual or small group, even though the object is allegedly flying near a major city.) However, there now exists a small cottage industry of individuals who write and lecture that they saw the Phoenix Lights doing impossible things, and hence the lights could not possibly have been flares.

UFO buffs eagerly offer "proof" when questioned, but it falls short by orders of magnitudes of the evidence required to support such extraordinary claims. They also typically fail to see how their claims contradict accepted science in very significant ways.

While there is considerable interest in UFO photos and videos today, few if any recent images are considered definitive. Nearly all of the recent "unidentified" objects in them appear as simply dots, blips, or lights. The famous Mexican infrared UFO video of 2004 turned out to be simply airborne images of distant oil well flares. Given the near-ubiquitous availability today of cell-phone and digital cameras, many of which are

capable of producing videos, it is most curious that we do not have clear, close-up photos and videos of the many reported close encounters and abductions. We do get, however, plenty of photos of blips and dots that could be practically anything. Also, with the proliferation of software such as Photoshop for altering and even creating photos and videos, a photo or video cannot simply "stand by itself" as evidence of anything. For a photo or video to be convincing, we must know a great deal about its origins, the photographer, the location, etc. A number of really clever digital photo and video UFO hoaxes have been created in recent years, but typically they are submitted anonymously via the Internet because the story of their origin would not withstand scrutiny.

Conspiracies Abound

Given the near-universal belief among "Science Fiction" UFOlogists that UFO crashes, secret programs, and even alien captures have taken place, it follows that there must exist conspiracies of gigantic scale with vast resources successfully concealing UFO secrets from the world at large.

There is a widespread belief in an alleged secret U.S. government group known as MJ-12 (or Majestic-12), whose job is to investigate UFO crashes and also arrange their cover-up. UFOlogists William L. Moore and Jaime Shandera announced in 1987 that they had anonymously received copies of government documents purporting to show the activities of a secret UFO crash/retrieval organization. Fearing a possible compromise of government documents, the FBI investigated and quickly concluded that the documents were "completely bogus." Other problems in the documents were soon noted. For example, one document was typed on a typewriter model that was not manufactured until fifteen years after the date on the document. Many UFO proponents strongly defend the authenticity of these "leaked" documents, but no proof of their authenticity has ever surfaced. Additional MJ-12 documents supposedly continue to be leaked to UFOlogist Timothy S. Cooper, far more than Moore or Shandera claim to have received. These newer MJ-12 papers are even less credible than the original ones. Dr. Robert M. Wood and his son Ryan S. Wood are the principal promoters of the "Majestic Documents" today via their Web site www.majesticdocuments.com, documentaries, conferences, etc.

Others hypothesize that NASA is involved in a giant conspiracy to hide UFO data uncovered during its various space flights. Rumors of astronaut UFO sightings abound, supported by misquotations and even outright fabrications. Comments from astronauts concerning sightings of not-then-identified space debris were taken out of context to make it sound as if they saw alien spacecraft. While a few astronauts have been believers in UFO claims (most notably Edgar Mitchell and the late Gordon Cooper), not one astronaut claims to have seen any non-earthly technology while on any spaceflight. During shuttle missions while the astronauts are sleeping, NASA often makes real-time video available of Earth from the orbiter's cameras, which is shown by some cable-TV services. Some UFOlogists, convinced that there are secret goings-on concerning UFOs and NASA, will record many hours of this uneventful video. Later, they scrutinize the recordings, looking for little dots or blips that to them represent alien spacecraft. Tiny pieces of ice or other orbital debris, sometimes kicked around by exhaust from the shuttle's attitude control thrusters, are trumpeted as proof of aliens cavorting about while watching our space missions, a secret said to be kept hidden by NASA.

Author Richard C. Hoagland has become famous by promoting claims of many varied space-related conspiracies, mostly involving NASA. Over the years he has claimed that NASA has been covering up knowledge of a face on mars, large alien artifacts on the Moon, anti-gravity forces, and civilizations on the moons of Jupiter and Saturn. His Web site, www.enterprisemission.com, is filled with notions about space conspiracies and "hyperdimensional physics," which apparently go far beyond anything known to ordinary physicists.

Another major purported conspiracy centers around the claims of reverse engineering of alien technology made in The Day after Roswell (1997) by the late Col. Philip J. Corso. According to Corso, a great deal of today's familiar technology, including integrated circuits, fiber optics, and lasers, were not actually invented by earthlings but were reverse-engineered from technology found in the alleged Roswell saucer crash. Corso also claims that he alone was able to understand this alien technology, after some of the nation's top scientists had tried and failed. Corso's claims have been extensively investigated and debunked by UFOlogist Brad Sparks and others but continue nonetheless to enjoy widespread acceptance, in spite of being entirely without foundation.

One group working to uncover the supposed Grand Conspiracy is called The Disclosure Project (www.disclosureproject.org), founded by Steven M. Greer, a physician. They claim to have assembled over 400 military and government witnesses to UFO events and projects who are willing to give testimony about them. "The weight of this first-hand testimony, along with supporting government documentation and other evidence, will establish without any doubt the reality of these phenomena" according to Greer. This evidence was presented to the media in a much-hyped press conference at the National Press Club in Washington, D.C., on May 9, 2001. It should come as no surprise, given the media's love of reporting sensational claims, that the cover-up allegations of Greer and his colleagues were repeated widely on all the news outlets for

at least a few news cycles. After that they simply disappeared, failing to convince even the most sensation-hungry reporter that there was pay dirt under the dust and chaff. Not one of the "disclosure witnesses" could produce a single shred of evidence beyond their own unsupported words, and many of them carry such baggage that believing what they say becomes a Herculean task. Greer's claims of secret technology involving "zero-point energy," "anti-gravity," and even "superluminal" devices serve as red flags to knowledgeable persons that what follows is pure fantasy.

Another interesting contemporary exercise in UFO fantasy involves what is called exopolitics, "political implications of the extraterrestrial presence." It is the brainchild of Michael Salla, who, with a doctorate in government, travels worldwide to participate in conferences and retreats, campaigning for peaceful relations between humans and extraterrestrials and for an end to the alleged UFO cover-up. Since there is no actual evidence of any alleged "extraterrestrial presence," this discipline has much in common with medieval disputes concerning angels and pinheads. Nonetheless, it has become a significant player on the UFO scene, and Salla's Web site, www.exopolitics.org, receives several million visitors yearly. Exopolitics claims that "hidden agreements concerning extraterrestrial life have been secretly entered into by a range of government-authorized agencies, departments, and corporations. In some cases, these pacts involve representatives of advanced extraterrestrial civilizations whose existence has not been disclosed to the general public." They insist that such agreements should be made openly.

Promotion of UFO Belief Today

Initially, UFO excitement and belief was spread by news reports over mass sightings—a phenomenon that no longer occurs. Major magazines and books made sensational claims about sightings, which would generate much follow-on publicity. Pro-UFO books by Major Donald E. Keyhoe, Frank Edwards, John G. Fuller, and others became bestsellers and generated much interest and discussion of their claims. UFO groups such as NICAP and APRO appeared often in news stories about UFOs and were depicted as authoritative (rather than as groups devoted to promoting the idea of UFOs as interplanetary visitors).

It has now been over twenty years since a UFO book has become a bestseller and generated nationwide interest and controversy; the last two were Whitley Strieber's Communion (1987) and Transformation (1988). Today, first and foremost, the entertainment media play a major role in keeping UFOs alive, as well as radio and TV talk shows. News programs play only a very minor role. In the 1990s, cable-TV stations began producing entertainment programs based on popular UFO claims and themes, such as Roswell, the Alien Autopsy, and UFO abductions. In 2002, the Science Fiction (Sci-Fi) channel presented Steven Spielberg's Taken, a twenty-hour miniseries based on alleged UFO abductions. Soon there were many other entertainment programs featuring UFO themes, which even though presented as fiction many take to be "based on fact." Entertainment shows were soon bolstered by pro-UFO documentaries in which the skeptical view is given little or no voice and then by UFO "reality shows," such as The History Channel's UFO Hunters (2008; see the review in this issue). In that show, several "UFO experts" (all of whom are favorable to the pro-UFO position) investigate UFO claims and invariably find tantalizing evidence yet never any real proof.

Talk shows on radio and TV also reach millions of people with their sensational claims and uncritical analyses. Since the 1980s, the syndicated late-night, call-in radio show Coast To Coast AM has reached millions—now on over 500 stations as well as on XM satellite radio. Originally hosted by Art Bell, and now by George Noory, the show offers a dazzling array of wild tales about not only UFOs but cryptozoology, parapsychology, and conspiracies of every sort. Callers often relate their own allegedly paranormal experiences, and it seems that no claim is too bizarre to be given a respectful hearing.

Given the near-ubiquitous availability today of cell-phone and digital cameras, many of which are capable of producing videos, it is most curious that we do not have clear, close-up photos and videos of the many reported close encounters and abductions. We do get, however, plenty of photos of blips and dots that could be practically anything.

Even some of the biggest names in the broadcast industry have uncritically promoted UFO claims in an attempt to boost ratings. During the summer of 2008, Larry King Live on CNN ran a series of poorly balanced programs about UFOs that displayed shockingly low standards of critical thinking for a major journalist. In February 2005, ABC-TV ran in prime time a two-hour show, "Peter Jennings Reporting: UFOs—Seeing Is Believing." The late journalist, a former news anchorman for ABC News, said, "I began this project with a healthy dose of skepticism and as open a mind as possible. After almost 150 interviews with scientists, investigators, and with many of those who claim to have witnessed unidentified flying objects, there are important questions that have not been completely answered—and a great deal not fully explained." In spite of all the reporting and investigative resources that must have been available to Jennings, the program contained nothing significant that had not already been reported before, and was just a re-hash on primetime network TV of existing UFO claims and interviews with mostly pro-UFOlogists.

The Future

If the social phenomenon of UFOs tells us anything, it is that the future of the movement turned out differently than its proponents expected. For at least twenty years after Kenneth Arnold's sighting, believers expected that sometime soon, any day now really, a UFO would land openly—or would crash and be recovered—or otherwise be indisputably revealed. At the very least, believers hoped, the Air Force would end its alleged cover-up of the data it held about UFOs and disclose that information to the public. By the late 1960s, this expectation changed. With mass sightings having gone on for twenty years with no tangible result, UFOlogists' hopes transferred to UFO abductions providing the desperately sought Holy Grail of proof. When abductions had gone on for thirty years without producing anything tangible, excitement shifted to claims of crashed saucers. The idea of a major "disclosure" coming soon has long been a major hope and expectation in UFOlogy, paralleling the Christian fundamentalists' expectation of the Second Coming. The respected U.S. News and World Report published in its Washington Whispers column on April 18, 1977, "Before the year is out, the Government—perhaps the President—is expected to make what are described as 'unsettling disclosures' about UFOs." Perhaps the editors had forgotten that same magazine's cover story of April 7, 1950, "revealing" that flying saucers were in fact a secret Navy project. Every few years, UFO disclosure mania rises to a fever pitch but always subsides.

In the March 1991 issue of Fate magazine, UFOlogist Jerome Clark reviewed two new books on Roswell and excitedly predicted: "Major media—not just the usual tabloid papers—will pick up the story and recount their own investigations, which will confirm the UFOlogists' findings." Of course, this never happened. We're now coming up on the thirtieth anniversary of the publication of The Roswell Incident, and the case has sustained heavy blows by the disclosures about Project Mogul. Subsequent alleged saucer crashes never achieved anything near the level of belief or publicity that Roswell did (at least something did crash near Roswell, even if it wasn't a UFO). So it's likely that UFOlogy is ready for the "next big thing." What that will be is difficult to say. Skeptical researcher Martin Kottmeyer has famously described the UFO movement as "an evolving system of paranoia," and as such it's difficult to predict where its paranoia will evolve next. Whatever it may be, we can expect it to offer an element of personal relationship or involvement (like contactees and abductees), to sound exciting and at least a little dangerous, and above all to promise such stunning evidence as to blow the alleged cover-up sky-high. It will have to excite and to entertain simultaneously—a tall order, but one that UFOlogy has been able to fill thus far. □

Author's Note: Most of the UFO cases and individuals mentioned in this paper have been featured in my "Psychic Vibrations" column in the SKEPTICAL INQUIRER, appearing regularly over the past thirty years, where more details are available. Some of these columns are available online. A Google search on any person, book, or UFO case mentioned here will return a great deal of information and background, not all of it reliable. Consider the source in judging the credibility of any UFO claims you encounter.

Some recommended sources of information on contemporary UFO claims are:

UFO Sightings by Robert Sheaffer (Prometheus, 1998).

The UFO Skeptic's Page by Robert Sheaffer, available online at www.debunker.com/ufo.html

"Psychic Vibrations" column by Robert Sheaffer, in SKEPTICAL INQUIRER magazine (1977– present); "Give Me Disclosure, or Give Me Death!," March 2002 (available online at http://tinyurl.com/4nx5ju); "Where the UFO conspiracy theories roam," July, 2005 (available online at http://tinyurl.com/3vmynp); "Where have you gone, Commander Quasgaa?" Sept. 2002 (available online at http://tinyurl.com/4pdrnl).

"The Campeche, Mexico 'Infrared UFO' Video" by Robert Sheaffer. SKEPTICAL INQUIRER, September/October 2004 (available online at www.csicop.org/si/2004-09/campeche.html).

Roswell: Inconvenient Facts and the Will to Believe by Karl Pflock (Prometheus Books, 2001).

Book review, "The Day after Roswell" by Brad Sparks. SKEPTICAL INQUIRER, March-April, 1998 (available online at http://tinyurl.com/4dtl42).

NASA Conspiracies and "Astronaut UFOs": See James E. Oberg's Web site, available online at www.jamesoberg.com.

The Klass Files, some collected UFO writings of the late Philip J. Klass (available online at www.csicop.org/klassfiles/Home.html).

The UFO Invasion (Prometheus 1997), a collection of SKEPTICAL INQUIRER articles critically examining claims of UFOs, crashed saucers (nine articles on the Roswell claims), alien autopsies, alien abductions, and other UFO cases, plus crop circles.

UFOs and Aliens in Space

Popular UFO claims include alien bases on the Moon and Mars. It is widely (but falsely) reported that Buzz Aldrin saw a UFO on the Apollo 11 flight and that NASA spacecraft discovered a humanoid face and other artifacts on Mars.

DAVID MORRISON

Much of the public believes that UFOs are alien spacecraft. This represents a conceptual leap from unidentified lights in the sky or radar bogies that were the UFO stories when I was growing up. Today, "believers" are talking about actual alien contact, with alien bases on the Moon and Mars, and their concerns receive reinforcement from radio, TV, and Internet blogs.

On one level UFOs are real, of course; many people occasionally see objects in the sky that are not immediately identifiable as planes, balloons, planets, stars, or unusual atmospheric phenomena. But the questions I receive from the public (submitted to a NASA Web site) suggest a belief system linking UFOs with alien visitations and abductions

spiced up by "conspiracy theories" to hide this information from the public.

If UFOs are alien spacecraft visiting Earth, then it seems reasonable that evidence of alien civilizations might be seen by astronomers or the radio signals from alien spacecraft might be picked up by the sensitive receivers we use to communicate with our own spacecraft. Perhaps astronauts who venture into space would be among the first to make reliable observations of alien spacecraft or artifacts. Perhaps we should look for alien bases on other worlds. Indeed, the Internet carries many stories of such encounters. I will examine some of the evidence cited for alien presence in the solar system.

Astronaut Encounters with Aliens

One allegedly well-documented report stems from an interview in which astronaut Buzz Aldrin describes seeing a UFO during the Apollo 11 mission. In an interview on the Science Channel (now posted at http://youtube.com/watch?v=XlkV1ybBnHI), Aldrin stated that he, Neil Armstrong, and Mike Collins saw unidentified objects that appeared to follow their Apollo spacecraft.

To get the story straight, I called Buzz Aldrin, who was happy to explain what happened. He said that his remarks were taken out of context to reverse his meaning. It is true that the Apollo 11 crew spotted an unidentified object moving with the spacecraft as they approached the Moon. After they verified that this mystery object was not Apollo 11's large rocket upper stage, which was about 6,000 miles away by then, they concluded that they were seeing one of the small panels that had linked the spacecraft to the upper stage (any part of the spacecraft's rocket upper stage will continue to move alongside the spacecraft, as both are floating in free-fall). These panels were too small to track from Earth and were relatively close to the Apollo spacecraft. Aldrin told me that they chose not to discuss this on the open communications channel since they were concerned that their comments might be misinterpreted. His entire explanation about identifying the panels was cut from the broadcast interview, giving the impression that the Apollo 11 crew had seen a UFO. Aldrin told me that he was angry about the deceptive editing and asked the Science Channel to correct the intentional twisting of his remarks, but they refused. Later, Aldrin explained what happened on CNN's Larry King Live (www.youtube.com/watch?v=Np45b2Xt-Ww&feature=related) but was nearly cut off by the host before he could finish.

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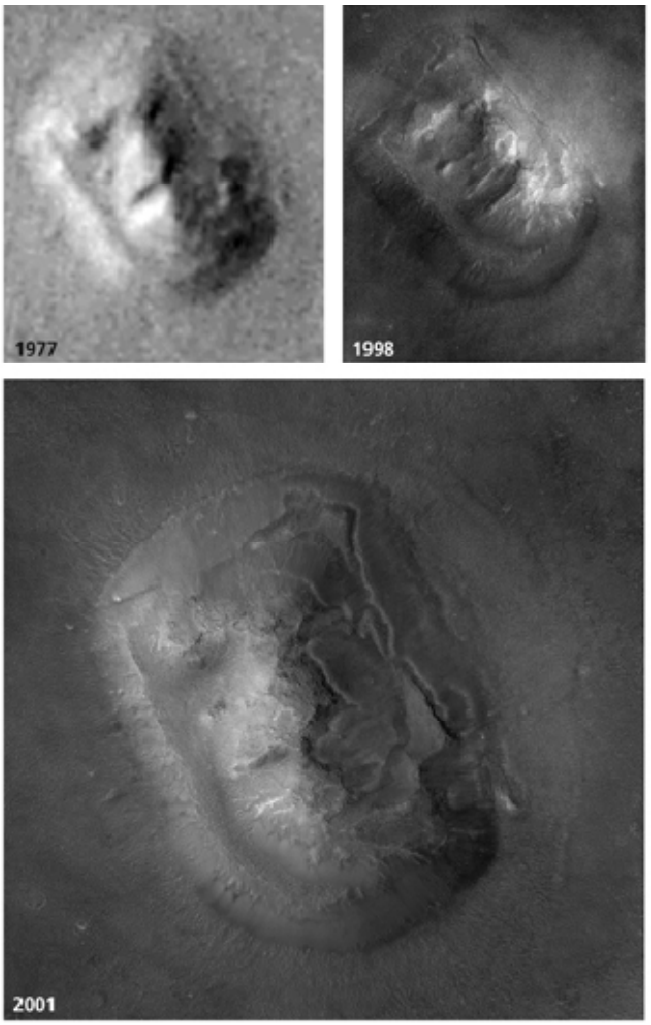
With the popularity of YouTube, this same question is addressed to me repeatedly, as in: "Check out this video on YouTube with Buzz Aldrin saying he saw a UFO on Apollo 11. Who is fibbing? NASA or the great American hero, Buzz Aldrin?" My answer was that the fibbing was being done by the producers of the video, who omitted the second half of the interview.

Buzz Aldrin (at top and on the moon) asked the Science Channel to clarify to their viewers that he did not see a UFO, but they refused.

It is instructive to watch this interview to see the ways the story is embellished and ultimately manipulated. Most of the talking is done by the interviewer and not Aldrin, but their comments have been edited to create the illusion of a seamless narrative. Throughout the interview we see a montage of short scenes from Apollo and other missions, including a blurry image through the window taken during a later flight. Only a critical



As improving technology allowed for higher photo resolution, the "face on Mars" looked less like a face and more like the natural landform it is.

viewer will distinguish what Aldrin said from the narrative by the interviewer or realize that the video clips are unrelated. The end product is clever disinformation, strongly suggesting—without explicitly lying—that Aldrin and his crewmates saw an alien spacecraft.

Many Internet claims of encounters between NASA astronauts and alien spacecraft are based on quotes from "secret communications" between flight crews and Houston. It is true that there are such private conversations, concerning crew health for example. But the Internet stories of overheard conversations are never documented and often attributed to leaks from unnamed NASA workers whose jobs (or even lives) would allegedly be at risk if they were identified. Many of these stories involve the Apollo 11 flight, and they include claims that alien spaceships accompanied the NASA craft during its Moon landing and that a row of alien spacecraft along a crater rim monitored the astronauts' spacewalk on the lunar surface. (Incidentally, Apollo 11 landed on a flat plain where there were no hills or crater rims to provide such a viewpoint.)

To my knowledge, no NASA astronaut has ever reported seeing a UFO in space, let alone having a confrontation with aliens. However, this is not to say that no astronaut believes that alien visitations to Earth might be happening. Recently there were news reports that Apollo 14 astronaut Edgar Mitchell believes in the reality of some reports of UFOs. He has attended a number of meetings of UFO believers, and he asserts that some of these reports are true, and that the U.S. government and military are aware of these alien visits. However, Mitchell does not claim to have seen aliens himself. His astronaut colleagues tell me that he has always had an interest in the occult, and he even tried to conduct a parapsychology experiment on the way to and from the Moon. It is easy for a journalist to ignore Mitchell's caveats about most UFO reports being untrue, or about not encountering an alien himself, to give the impression that he and other astronauts have had frequent encounters with beings from other worlds.

One argument presented to me by several correspondents is that aliens must have warned humans to stay away from their bases on the Moon. Otherwise, why was the Apollo program suddenly terminated with three more missions scheduled and almost ready for launch? (The huge Apollo/Saturn-5 rockets that enthrall visitors to the NASA space parks at Canaveral, Houston, and Huntsville are not mock-ups; they are real hardware built for Apollo 18, 19, and 20.) The conspiracy story attributes our failure to follow up on the Apollo flights to this same interplanetary quarantine and suggests that NASA's current program to return astronauts to the Moon will be cancelled for the same reason. I admit being baffled by the sudden termination of the Apollo program at the peak of its success, but I accept the official explanation that it was due to the changing political priorities of the Nixon administration, where many looked upon Apollo as a Kennedy-Johnson program.

Mars: The Viking Era

Mars plays a unique role in public consciousness. Just a century ago, this planet was widely thought to be inhabited by intelligent creatures, largely due to astronomical studies and the popular writing of Percival Lowell. The classic science-fiction novel War of the Worlds by H.G. Wells reinforced public curiosity about the possibility of aliens on Mars. But early space missions that showed decisively that Mars was not really very Earth-like—with no canals and an atmosphere only 1 percent the size of ours—damped much of the public's fascination. Scientific interest has steadily increased, however, and Mars is the planet most visited by spacecraft. The first stage of sci-

entific exploration climaxed in 1976 with two identical Mars landers and orbiters as part of the Viking program. All four Viking spacecraft were fabulously successful, providing a comprehensive survey of the planet together with detailed analysis at two landing sites, including clever experiments to search for evidence of microbial life.

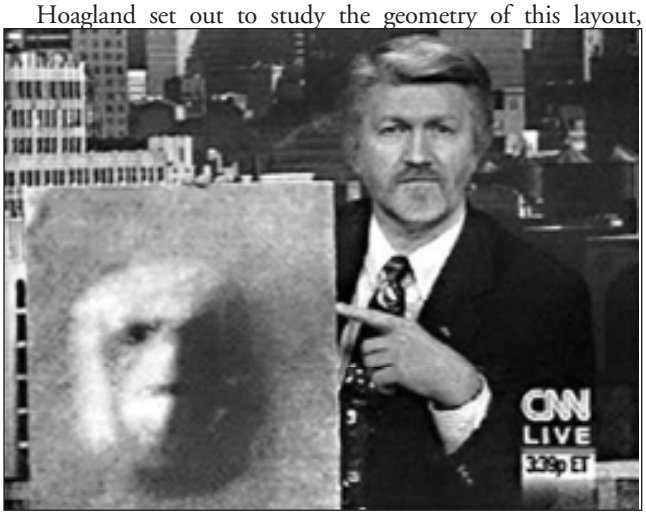
After two decades of post-Viking neglect, NASA initiated a new series of Mars missions with the 1996 Mars Pathfinder, which included a rover about the size of a microwave oven. After two mission failures in 1998, several remarkably successful orbiters and the two famous Mars Exploration Rovers, Spirit and Opportunity, followed. In addition to high-resolution orbiting cameras, there is also a digital, global topographic map based on laser ranging between the orbiter and the surface. As a result, we have more detailed and quantitative data on martian topography than we do for much of the Earth's surface.

Naturally, the tens of thousands of high-resolution photos from orbit and on the ground (all publicly available) have been studied for evidence of life and any potential artifacts of a possible ancient civilization. In this respect, the most famous discovery was made by Viking Orbiter 1 in 1977, in a low-resolution (about 40 meters) photo of the ancient Cydonia region of Mars. In the midst of a heavily eroded plain with irregular low mountains or mesas is the Face on Mars, one of the iconic images of the space program.

The Face on Mars, seen under oblique lighting, seems to be an oval humanoid face with eyes, nose, and a mouth. It is about one kilometer across and surrounded by a sort of halo that reminds some of the cloth headpiece worn by Egyptian pharaohs. It was spotted by Viking scientist Toby Owen and released to the press as a joke to show how even on Mars we (humans) could find features that looked vaguely like ourselves. Unfortunately, Viking project scientist Jerry Soffen made an offhand remark to the press that this "face" showed up only under this particular lighting and not in other photos of the same site. The problem was that Viking had not taken other photos of this spot at equal or higher resolution, and the mission ended before this area could be mapped again. Thus began another conspiracy theory: NASA was suppressing confirming photos of the face. When the next NASA mission to photograph Mars (Mars Observer) failed in 1992 shortly before its arrival at the Red Planet, the story began to circulate that this failure was faked and the spacecraft was really in orbit and sending back secret high-resolution images of the face.

The Face on Mars has been vigorously promoted by one energetic entrepreneur: Richard C. Hoagland. A young freelance journalist and one-time museum guide, Hoagland was a part of the large corps of journalists who encamped at the Jet Propulsion Laboratory (JPL) for the Viking landings. Hoagland not only accepted the artificial origin of the face, he went on to develop a detailed "theory" that linked this feature with a number of others in Cydonia that he also interpreted as artificial. These included a set of intersecting low ridges that he called the "city" and several mountains of roughly pyramid shape. (Pyramid-shaped peaks with three or four sides are a rather common product of both ice and wind erosion on Earth.)

Hoagland set out to study the geometry of this layout,



Richard C. Hoagland's elaborate interpretations of "monuments" on Mars are amazing flights of imagination.

finding coincidences in the angles between the features that further demonstrated (to him) their artificial origin. He published the results from his "research" in a 350-page book called The Monuments of Mars (now in its fifth edition). He also undertook a lecture circuit that climaxed when a naïve public affairs officer at NASA Glenn (then Lewis) Research Center in Cleveland invited him to present a director's seminar and then offered to put a videotape of this talk on the NASA TV channel. Hoagland also began making regular appearances on Art Bell's late-night talk show Coast to Coast AM, where he still happily holds forth on the conspiracies of NASA and the U.S. government to keep the truth from the public.

Hoagland's elaborate interpretation of the "monuments" on Mars represents an amazing flight of imagination. Since the features are in a state of ruin, he concludes that the aliens who built them are no longer present and dates the construction of these huge projects to about half a million years ago. Since the face is (in his opinion) clearly human and directed upward (best seen from above), he concludes that it was built as a message for Homo sapiens, a species that was just emerging on Earth at the time. The story then bifurcates: either these aliens were also visiting Earth at the time and knew about the future rise of humans (analogous to the opening sequences in the book and film 2001, A Space Odyssey), or the monuments themselves were built by an earlier race of humans that had moved from

Earth to Mars and left no traces of their tenure on our planet. Yet another option is that Homo sapiens had a martian origin, migrating to Earth when their own planet became uninhabitable (a conclusion that flies in the face of all modern genetic analysis of humans and their primate cousins).

Hoagland's analysis of the geometric patterns of the alleged monuments convinced him that the entire layout in Cydonia was a technical message to humans, one that included the key to a limitless source of energy. Apparently he has deciphered the message but is not revealing it just yet, other than to say that this energy could be tapped only at latitude 19.5 degrees (north or south) on the Sun as well as Earth and Mars. More recently, Hoagland linked the monuments on Mars with the crop circles appearing on Earth, which also allegedly held the key to unlimited energy, implying that the creators of the city on Mars were also active today on Earth. The fact that Hoagland was able to peddle this bizarre fairy tale for two decades and make a living selling books and videotapes is a testament to his ability as a salesman, if not to his unscientific acumen.

The two-decade post-Viking hiatus from Mars provided plenty of time for Hoagland to market his fantasy. The 1992 failure of Mars Observer, far from ending this story, was twisted by Hoagland into an additional conspiracy theory. The day the failure was announced, a group of his followers demonstrated outside the JPL gates to protest the blanket of secrecy they claimed had been thrown over this mission whose real purpose was to allegedly study the face. In the late 1990s, one of the two most frequently asked questions in letters and emails received by NASA concerned the Face on Mars (the other topic was asteroid impacts).

New Results from Mars

In 1998, a much-improved camera arrived at Mars on the Mars Global Surveyor orbiter. A vocal segment of the public demanded that NASA give high priority to re-photographing the face. NASA wisely argued that this was not a high-priority target but quietly obtained a high-resolution image of the face as soon as the spacecraft orbit permitted it. On April 5, 1998, when the Mars Global Surveyor flew over Cydonia for the first time, Michael Malin and his Mars Orbiter Camera (MOC) team snapped a picture ten times sharper than the original Viking photos, revealing a natural landform. However, the new lighting was very different from that of the original Viking photo, and some face proponents refused to believe that this was really the same feature. On April 8, 2001, the MOC captured a photo using the camera's maximum resolution, better than two meters, which was twenty times higher than the Viking original. This spacecraft also carried another instrument, a laser ranging device, which gradually built up an extremely detailed quantitative topographic map of Mars that did not depend on lighting angles. With these data, it was possible to reconstruct exactly how the mesa would look from any direction. Many details of this story are recounted in the article "Unmasking the Face on Mars" at http://science.nasa.gov/headlines/y2001/ast24may_1.htm.

Additional images with even higher resolution were obtained in 2007 by the University of Arizona HiRISE camera on the NASA Mars Reconnaissance Orbiter (http://hirise.lpl.arizona.edu/PSP_003234_2210). With a resolution of 25 cm, these photos showed features as small as a briefcase. Such data eventually convinced almost everyone that the face was simply a mesa surrounded by an apron of eroded debris. NASA's chief Mars scientist, Jim Garvin, even jokingly plotted a hiking trail that ascended the rugged hill. However, as the true nature of this eroded mesa became undeniable, the suggestion was made that the face had been intentionally destroyed by NASA: the clandestine mission of Mars Observer had been to first photograph the feature in detail, then deface it with a well-aimed nuclear missile.

Meanwhile, Richard Hoagland was moving on and generating new claims, some even more bizarre than those associated with the face. The Wikipedia article on Hoagland mentions his assertions that "Rocks on Mars containing biological fossils were purposely destroyed by NASA's rover Opportunity. Numerous objects surrounding the landing sites of the Mars Exploration Rovers are in fact pieces of martian machinery. There are large semitransparent structures constructed of glass on the lunar surface, visible in some Apollo photography. There is a clandestine space program, using antigravity technology reverse-engineered from lunar artifacts and communicated by secret societies. Federal agencies such as FEMA and NASA are linked to Freemasonry."

Hoagland held a press conference at the National Press Club on October 30, 2007, to "review NASA's 50 years of cover-ups and hidden solar system data." His accusations against NASA appeared in more detail in his book with Mike Bara, Dark Mission: The Secret History of NASA. He was also by then in his crop circle phase, promoting new sources of energy revealed to him in the crop circles. And he is still a regular guest on Coast to Coast AM, where he has the title of science advisor.

Humans have a natural tendency to see anthropomorphic features in natural shapes such as clouds and mountains. As thousands of new photos of the martian surface were streaming back from the rovers, some of these tendencies were bound to pop up. One of the funniest is an image of a tiny eroded rock only a few centimeters long that looks rather like the famous "little mermaid" statue in Copenhagen Harbor. This too has been hailed as a real photo of a Martian. The continuing torrent of spacecraft images from current missions to Saturn and Mercury as well as Mars will probably generate new advocates for aliens in space. Fortunately, the vast majority of people are happy to accept these images as wonderful products of our space age exploration of the solar system and not as a new episode in the great alien cover-up. □

The Minsk UFO Case

Misperception and Exaggeration

The 1984 Minsk sighting serves as a case study for flying-saucer sleuthing and demonstrates how UFOs can be created from mundane phenomena.

JAMES OBERG

The highly publicized releases of "UFO files" from France and Britain provide more puzzling tales about the "appearance" over the years of anomalous aerial objects. But the real stories behind some of the most spectacular sightings in UFO history will come to light only when the Russian Ministry of Defense opens up its files.

"At exactly 4:10 AM..." began the story of arguably the most sensational UFO incident in Russian history
Any investigation of the interactions between UFO lore in Russia, and the Russian missile and space program, must begin -- and will end -- with this amazing story
Nikolay Potapov; agent Vyborg2@yandex.ru
http://www.potapov-art.spb.ru/images/04.jpg
ПОЧТА СССР

Consider one of the most sensational UFO stories in Soviet history—a story that has been enshrined in the most high-quality data files of world UFOlogy as a classic that cannot be explained in any prosaic terms. It really is an important case study, because the tale of the Minsk UFO sighting can teach a lesson about the irremediable vigor of unidentified flying objects as a cultural phenomenon.

A passenger jet is flying north on September 7, 1984, near Minsk, in present-day Belarus. Suddenly, at 4:10 AM, the flight crew notices a glowing object outside their forward right window. In the ten minutes that follow, the object changes shape, zooms in on the aircraft, plays searchlights on the ground beneath it, and envelops the airliner in a mysterious ray of light that fatally injures one of the pilots. Other aircraft in the area, alerted by air traffic control operators who are watching the UFO on radar, also see it.

Respected British UFOlogist Jenny Randles, in The UFO Conspiracy (115) described it this way:

> A radar visual case from the USSR began on an evening in 1985 [sic] at 4:10 AM when Aeroflot flight 8352 observed a strange yellow light while cruising at 30,000 feet in clear conditions. A "blob" shot out and downward from the light, and projected a cone of brilliant (greenish?) light at the ground below. Two additional beams appeared, and features on the ground could be seen to be illuminated.
>
> One beam then swung around and illuminated the aircraft cabin. The light appeared to approach and resolved into a greenish luminosity as much as several degrees in extent, which then paralleled their course. There were multiple lights of different colors and fiery zigzags that crossed the vapor.
>
> At this point, the aircraft was coming within range of the ground controller, who could then also see the object. The object seemed to change shape, [and according to a quoted report] "it developed an 'appendage' and then 'became' a wingless cloud-aircraft with a pointed tail (the spike?). The yellow and green glow, like phosphorescence, was eerily intertwined." A second aircraft was vectored nearby and also could see the object near the first aircraft. Talinn approach radar detected the aircraft and the object, and also experienced unusual radar interference. (www.ufocasebook.com/ussrradar1985.html)

The incident also figures prominently in UFO Chronicles of the Soviet Union (Ballantine, 1992, pp. 128–9), a 1992 book by Jacques Vallee, who was the real-life inspiration for the fictional UFOlogist in the movie Close Encounters of the Third Kind. Valle reports in the book that "Two military pilots saw an object that hit them with a beam of light. One of the pilots died; the other managed to land the plane, although he had also suffered psychological effects from the light." Vallee said that he learned the story from Yevgeniy Kolessov in January 1990 during a visit to the "Kosmos" pavilion at the "VDNKh" exhibits park in northern Moscow.

On page 201 he categorizes the case as an "encounter" in which "witnesses suffer significant injury or death—one of only three in Russian UFO history." The story is based on a "first-hand personal interview with the witness by a source of proven reliability," with the "site visited by a skilled analyst," and the conclusion was that "no natural explanation [was] possible, given the evidence."

A leading Russian UFO expert, Vladimir Azhazha, reported in "UFOs: Space Aliens?" in Soviet Soldier magazine, December 1991:

> Any meeting with or even sighting a UFO is fraught with danger. Let us consider the following case. On December [sic] 7, 1984, a liner flying from Leningrad to Tbilisi came across an unidentified flying object.
>
> For some time the plane accompanied the alien craft, illuminating it with a searchlight. The outcome of the contact was tragic. Half a year later, V. Gorridze, the crew commander, died of cancer; Yu. Kabachnikov, the second pilot, had a serious mental derangement. The encephalogram of his brain was not of an "earthly" character, as he lost memory for long periods of time. Now he is a "first group" invalid; naturally, he cannot fly. The hostess, who was in the control room [i.e., cockpit] at the moment of the UFO "attack," fell ill too. She developed a heavy skin disease of unknown character. Perhaps somebody [sic] of the passengers was also affected. Regrettably we have no information to this effect.

Ukrainian-born author Paul Stonehill has written many books on Soviet UFOlogy. In his version,

> The greenish cloud suddenly dropped below the altitude of the aircraft, ascended vertically, moved to the left and right, and then stopped right across from Tu-134A [flight 7084]. The cloud was chasing it.... Lazurin shouted the object was teasing them.
>
> Then another Tu-134A entered the control tower area. The distance between the two aircraft was [100 km]; one could not miss the giant cloud from such a distance, yet the commander of the other airplane did not see anything. Only at [15 km] did he see the UFO....
>
> The captain of flight 7084, V. Goridze, died in 1985 as a result of electromagnetic radiation. Kabachnikov, the pilot, was

James Oberg, a founding fellow of CSI, was a professional space engineer at NASA's Mission Control in Houston, Texas, and is now a writer and news media consultant. He has decades of experience in sleuthing out "space secrets" about Soviet, American, and Chinese space programs and modern space-age legends in general. His web site is www.jamesoberg.com. A shorter version of this article was published on the MSNBC.com science Web site in May 2008.

fired because he developed heart disease.... The Tallinn crew suffered one casualty, a steward, who developed similar ailments as the pilots of Flight 7084.

This is certainly a story that "has everything." It's no wonder it achieved such elevated status—and absolute credibility—in UFOlogy. And as we shall see, it fully deserves such elevated status but for absolutely opposite reasons.

This combination of perceptions from multiple witnesses and sensors, together with the serious physiological effects, makes for a dramatic event that on the face of it defies any earthly explanation. It was just as amazing that the official Soviet news media, long averse to discussing UFO subjects, disclosed the story in the first place. So it was no mystery that over the years that followed, the story was never actually checked out. It was only retold again and again.

Weighing the Pilots' Evidence

However much we are comfortable with entrusting our lives to airline pilots, a blind trust in their abilities as trained observers of aerial phenomena is sometimes a stretch. For a number of excellent and honorable reasons, pilots have often been known to overinterpret unusual visual phenomena, often underestimating their distance from what appear to be other aircraft.

Think of it this way: you want the person at the front of the plane to have hair-trigger alertness for visual cues to potential collisions so that avoidance maneuvers can be performed in time. A worst-case interpretation of perceptions is actually a plus.

So it's no surprise that pilots have sent their planes into a dive to avoid a fireball meteor that was really fifty miles away or to dodge a flaming, falling satellite passing sixty miles overhead. Even celestial objects are misperceived by pilots more frequently than by any other category of witnesses, concluded UFO investigator J. Allen Hynek over thirty years ago. Since the outcome of a false-negative assessment (that is, being closer than assumed) could be death and the cost of a false positive (being much farther away) is mere embarrassment, the bias of these reactions makes perfect sense.

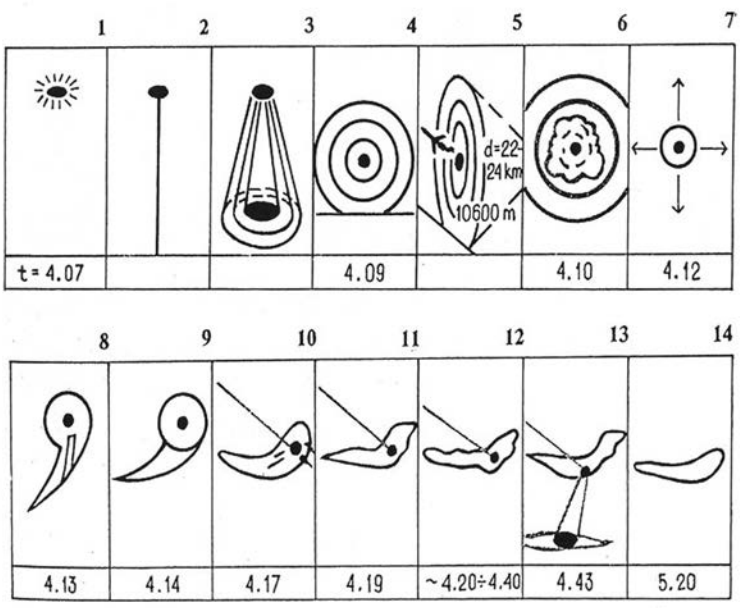
What Could Have Caused It?

Was there anything else in the sky that morning that the Soviet pilots might have seen? This isn't an easy question, since the Moscow press reports neglected to give the exact date of the event, but I could figure it out by checking Aeroflot airline schedules.

It turned out that early risers in Sweden and Finland had also seen an astonishing apparition in the sky that morning. These are the report summaries Claus Svahn, an experienced researcher and writer for UFO-Sweden, published in his group's magazine:

- Truck driver Jan Åke Jansson, heading ENE between Örebro and Arboga, observed a "very strong globe of light" just over treetops in the north, which vanished in twenty seconds.
- Policeman Mikael Smitt in Örebro received a radio call from a patrolman of a very strong light in the sky with "a skirt" under it, which slowly moved east. Smitt called Swedish Air Force in Uppsala and Arlanda airport; both sites confirmed observing the light in the ENE direction.

- Train engineer Ingvar Finér reported to UFO-Sweden that while driving a train south of Stockholm he observed a very bright light moving in the NNE "at a very high altitude." He wrote that the light hit the ground in front of him, making it possible to see features he had not seen before.
- Olof Baard was driving a newspaper van near Sävsjö when he saw a strong light in the north. He stopped his van and got out for a better look. The object was soundless and looked "like a diamond in fog."
- "UFO Research of Finland," Annual Report 1984, stated: "Fifteen different locations all over Finland—phenomenon started as a bright rising object. Later there was a flash of light which created red, green, yellow and purple colors around the object. The skies were clear and therefore the phenomenon could be seen all over the country."



Pilot's sketch — September 7, 1984, from Science in the USSR

The immediate disconnect that I found was that the Scandinavian witnesses were not looking southeast toward Minsk (where the airliner was flying with its terrified crew). Nor were they looking eastward, toward the top-secret Russian space base at Plesetsk, where launchings sparked UFO reports starting in the mid-1960s. They were looking to the northeast, across Karelia and perhaps farther.

The direction of the apparition being seen simultaneously near Minsk provided another "look angle." If the vectors of the eyewitnesses are plotted on a map, they tend to converge over the Barents Sea, far from land. This made the triggering mechanism for the sightings—if they were all of the same phenomenon—even more extraordinary.

Still, some implications were attractive. If the two groups of witnesses were observing the same apparition (as subsequent evidence will support), then all interpretations of the UFO's close proximity to the Minsk witnesses can be dismissed as misinterpretations, and all interpretations that the UFO was local to witnesses there and responding specifically to them can be dismissed as baseless.

Preludes and Precedents

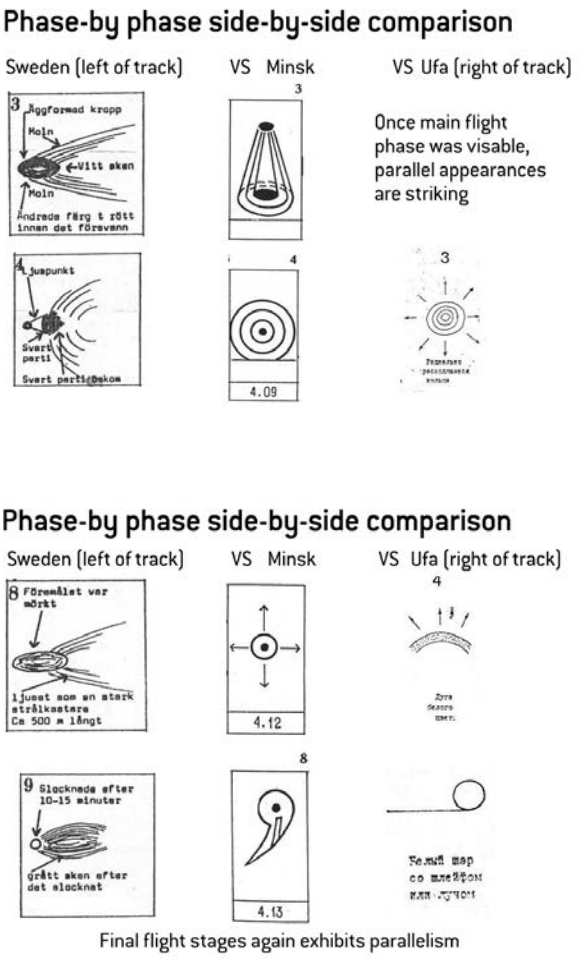
Whatever the stimulus behind the 1984 Minsk airliner story turned out to be, I already knew that many famous Soviet UFO reports were connected with secret military aerospace activities that were misperceived by ordinary citizens. I've posted several decades of such research results on my Web site.

In 1967, waves of UFO reports from southern Russia and a temporary period of official permission for public discussion created a "perfect storm" of Soviet UFO enthusiasm. But it was short-lived—the topic was soon forbidden again, possibly because the government realized that what was being seen and publicized was actually a series of top-secret, space-to-ground nuclear warhead tests, a weapon Moscow had just signed an international space treaty to outlaw.

Once the Plesetsk Cosmodrome (south of Arkhangelsk) began launching satellites in 1966, skywatchers throughout the northwestern Soviet Union began seeing vast glowing clouds and lights moving through the skies. These were officially nonexistent rocket launchings. "Not ours!" the officials seemed to be saying. "Must be Martians."

Other space events that sparked UFO reports included orbital rocket firings timed to occur while in direct radio contact with the main Soviet tracking site in the Crimea. Such firings and the subsequent expanding clouds of jettisoned surplus fuel weren't confined to Soviet airspace. One particular category of Soviet communications satellites performed the maneuver over the Andes Mountains, subjecting the southern tip of South America to UFO panics every year or two for decades.

As the Soviet Union lurched toward collapse in the 1980s,


Phase-by phase side-by-side comparison
Sweden (left of track)
VS Minsk
VS Ufa (right of track)
Once main flight phase was visable, parallel appearances are striking
Final flight stages again exhibits parallelism
Phase-by phase side-by-side comparison
Sweden (left of track)
VS Minsk
VS Ufa (right of track)
Phase-by phase side-by-side comparison
Sweden (left of track)
VS Minsk
VS Ufa (right of track)

Sketches of the Minsk UFO as perceived from three different locations.

its rigid control over the press decayed. This allowed local newspapers, especially in the area of the Plesetsk space base, to begin publishing eyewitness accounts of correctly identified rocket launchings. The newspapers sometimes printed detailed drawings of the shifting shapes in the light show caused by the sequence of rocket stage firings and equipment ejections.

The Evidence Comes Together

Still, I wasn't willing to wave off the elaborate extra dimensions of the Minsk UFO case as mere misperception and exaggerated coincidences. Even though none of the most exciting stories, such as one pilot's death half a year later from cancer, could ever be traced to any original firsthand sources, they made for a compelling narrative.

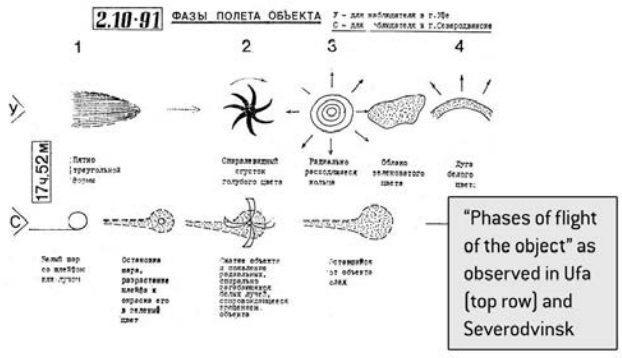
Skywatchers throughout the northwestern Soviet Union began seeing vast glowing clouds and lights moving through the skies.

Fortunately, the Soviet Union's collapse provided the opening for the collapse of the UFO story. The May/June 1991 issue of the magazine Science in the USSR contained an article that reprised the story with one stunning addendum from the co-pilot's [Gennadiy Lazurin] flight log. As it was happening, he sketched the apparition, minute by minute, as it changed shape outside his cockpit window. Now, fourteen of the drawings have been published for the first (and as far as I can tell, only) time.

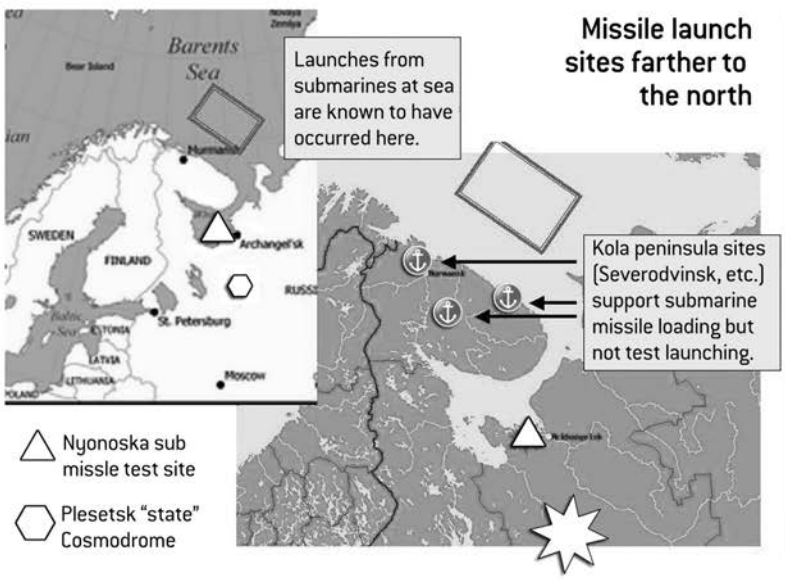
The graphic sequence of bright light, rays, expanding halos, misty cloudiness, tadpole tail, and sudden linear streamers may have looked bizarre to the magazine's readers, but they looked very familiar to me.

I dug out the clippings from Arkhangelsk newspapers mailed to me by an associate there. I looked up the other articles from recent Moscow science magazines that showed how beautiful these rocket launches looked. I also found the set of sketches

October 2, 1991 missile launch



"Phases of flight of the object" as observed in Ufa (top row) and Severodvinsk


Barents Sea
Launches from submarines at sea are known to have occurred here.
Missile launch sites farther to the north
Kola peninsula sites (Severodvinsk, etc.) support submarine missile loading but not test launching.
SWEDEN
FINLAND
Archangel'sk
St. Petersburg
Moscow
Nyonoska sub missle test site
Plesetsk "state" Cosmodrome

Submarines have launched military missiles and even satellites from the Barents Sea.

Nyonoska missile test site observed by U.S. Corona spy satellite, 1971.

made by a witness in Sweden of what was immediately recognized as a rocket launch. I laid the separate sketches out on a table.

They all clearly showed the same sequence of shape-shifting visions, as viewed from different angles to the rear and off to the side of the object's flight. The more recent accounts were of nighttime missile launches—and the impression was overwhelming that the Minsk UFO, as drawn in real time by one of the primary witnesses, looked and visually evolved just like the Swedish sketches.

So what happened? Here is a prosaic hypothesis:

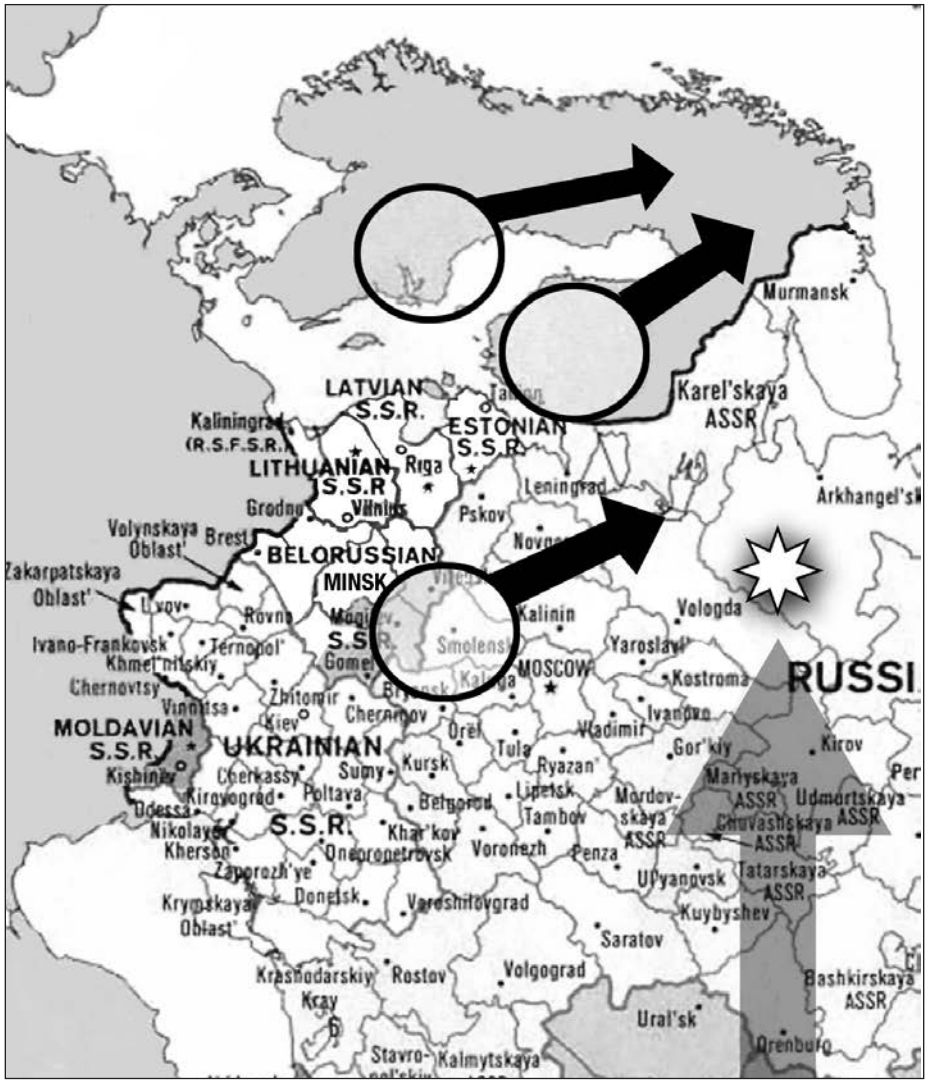
- The flight crew was unexpectedly treated to a spectacular naval missile test launch from the Murmansk area
- Interpreting the apparition as a structured craft that was a threat to their own aircraft (the proper instinct), they grossly misperceived its range and imagined its "intentions"
- Alerted by radio, other people in the area looked for weird apparitions in the sky or on radar—and a few found them
- Unusual in such cases, one witness took the opportunity to make real-time sketches of the developing phenomenon, and the record became public
- Amazed by the unprecedented experience, primary witnesses and their interviewees wove every coincidental occurrence into a single coherent narrative
- Media coverage was filtered to remove specific identifying details (e.g., exact date and possible simultaneous sightings in northern Russia) that could connect the UFO to a real event

Case Closed—Or Minds Closed?

Without Lazurin's detailed, minute-by-minute drawings, any claim for solving the case would have been tentative and circumstantial at best. Even now, the case isn't quite closed. Until the Russians release the records for the test launch of a submarine-based missile—as we now know often happened from that region of the ocean without official acknowledgement—the answer to the mystery will remain technically unproven.

But the answer is compelling enough to remind us of wider principles of investigating—and evaluating—similar stories from around the world: there are more potential prosaic stimuli out there than we usually expect. Precise times and locations and viewing directions are critical to an investigation. The temptation to fall into excitable overinterpretation is almost irresistible. Myriads of weird but meaningless coincidences can be combined to embellish a good story.

What have we learned from this experience? What do "pseudo-UFO reports" (such as this one) sparked by military space and missile events teach us about world UFOlogy?



Immediate implications of Scandinavian sightings

1. Witnesses did NOT report UFO in direction of witnesses on airliners near Minsk (Southeast)

2. Narrative features (bright light cloud, timing and motion, even ground illumination) establish same identity of stimulus

3. All interpretations of UFO close proximity to Minsk witnesses can be shown as misinterpretations

4. All interpretations that the UFO was local to witnesses and responding specifically to them can be shown as baseless

5. Plesetsj cosmodrome NOT likely as stimulus point of origin

- "Control experiments" (albeit unintentional ones) underscore how extraneous details and exaggerations intrude on and pollute raw perceptions
- Almost without exception, the more "research" done to currently accepted UFOlogical standards, the greater the introduction of obscuring and mis leading, garbled information
- The world's "best UFO experts" usually failed to identify and learn from the prosaic stimuli behind most top "Russia UFO" stories and aren't likely to do so
- It is fair to generalize that this failure is endemic to the attitudes and capabilities of UFOlogy and that "arguments from incompetence" ("We can't explain it—hence it cannot have an explanation") are unworthy of general belief
- Contemporary UFOlogy has gotten the legitimate notion of "government UFO secrets" completely backwards (governments sometimes opportunistically exploit the public's misinterpretations of their secret aerial activities in order to camouflage the truth about such activities, and UFOlogists are the unwitting tools of this deception)
- Reports of this type are not evidence for "alien visitations"

The most important factors for cutting through the misperceptions are having the good fortune to come across enough original evidence and having enough time to make sense of that evidence. The degree to which pure luck is critical to arriving at a persuasive prosaic explanation is humbling. That's one of the biggest lessons to be learned from the Minsk UFO case: as long as those factors are in short supply, it's no mystery why there are so many amazing UFO stories—and so many enthusiasts willing to endorse them. □

‘Buzzing Bee’ Missile Mythology Flies Again

An early morning ICBM launch in 1964 was photographed from a nearby mountain site, uncovering a design flaw that resulted in tight security and a UFO myth that refuses to die.

KINGSTON A. GEORGE

An important advance in national test-range instrumentation was made in the fall of 1964 at the California Air Force Western Test Range (WTR). An experimental, state-of-the-art, video-equipped telescope was transported from the Range Measurement Laboratory, located at the Eastern Test Range in Florida, to a California coastal mountain ridge near Big Sur. The objective was to evaluate the ability of this instrument to enhance the analysis of flight anomalies and failures during ICBM testing from Vandenberg Air Force Base. Unprecedented views of intercontinental ballistic missiles in flight were obtained, and one of the launches revealed a flaw in design that was deemed quite important at that time. Eleven launches were

viewed over the month of September, and the telescope and its crew returned to Florida in October.

As the project initiator and engineer, I had worked for months to gain the required clearances, arrange the myriad support mechanics, and assemble a crew. The Range Measurements Laboratory was headed by Walter Manning, an unforgettable character with remarkable energy and enthusiasm. The Air Force assigned Lieutenant Bob Jacobs from the WTR 1369th Photo Squadron as the telescope site commander for logistical and security matters. A bright and eager officer, he was a key contributor to the ultimate success of the project. Decades later, he concocted a story that we had filmed an alien UFO that circled an ICBM in flight, altering the missile's course with an energy beam. He asserted that the project became a cloaked intelligence effort to hide proof of scientifically advanced space aliens. This preposterous fabrication was founded on a lack of understanding mingled with distant recollections—and perhaps some tongue-in-cheekiness by Bob Jacobs—who left the Air Force for a college teaching career in, oddly enough, journalism and broadcasting.

Jacobs's first pronouncement was in the National Enquirer in 1982, and a more comprehensive version was published later (Jacobs 1989). The incident he described became known as the Big Sur UFO. A friend gave me the article after finding my name mentioned in it. I later submitted an unsolicited rebuttal to the SKEPTICAL INQUIRER (George 1993).

The Jacobs article correctly states the basic facts of the deployment. The telescope, called the BU Scope for short, had been assembled by Boston University for the Eastern Test Range. A modified 90 mm military gun mount is the cradle for a twenty-four-inch primary telescope mirror and a 240-inch basic focal length. An image orthicon television camera was the sensor, and the thirty-frame-per-second 875-line interlaced output was displayed on a kinescope in an accompanying van for recording by a 35 mm motion-picture camera. The site was close to Anderson Peak in the Los Padres National Forest near Big Sur at an altitude of 3,400 feet, approximately 110 miles to the north-northwest of Vandenberg Air Force Base. The launch that Bob Jacobs makes the centerpiece of his story was an Atlas missile nicknamed Buzzing Bee, released just before dawn on September 22. Conditions were ideal for the light-sensitive image orthicon to capture the best shots. My report in October 1964 (George 1964), the only contemporary written material on Buzzing Bee still in existence, indicates that it was tracked for about 400 seconds. At the end of the image-tracking the Atlas missile was roughly 3,000 miles away from our location.

Jacobs made six assertions near the end of his 1989 article. My 1993 rebuttal in SI concentrated on these items by countering with what we had actually captured on film that day. In a nutshell, the Atlas launch to the Kwajalein atoll included deployment of two decoy reentry vehicles (RVs) intended to confuse enemy defensive radars. Our photography showed that the decoys did not deploy properly after the main propulsion phase ended and were surrounded by pieces of Styrofoam packing from their launch tubes. Thus, the "real" warhead, released before the decoys and without the packing, stuck out like a sore thumb. The Strategic Air Command (SAC) headquarter analysts subsequently recognized this as a shortcoming of a major weapons system and classified the film as top secret. Film footage seen up to the time of this new classification was the origin of Jacobs's fantasy, as his security level was not high enough to handle the film or talk about it after re-classification. Nor was mine, at that time, but my clearance level was increased very soon thereafter.

The Air Force pressed on with projects to place a permanent telescope at Anderson Peak and equip it with our own image orthicon device. We also placed a telescope on Santa Ynez Peak to the east of Vandenberg AFB. Both sites were upgraded through the following decades. The image orthicon, difficult to adjust and "tune" in the field, was replaced with image-enhancement devices, auto tracking was developed, and many other improvements made. Use of the two sites allowed mapping of deployment events and reconstruction of three-dimensional depictions. The exercise of 1964, owing to Buzzing Bee, was a huge success that significantly enhanced the ICBM development programs.

The Resurrection of the Alien Myth

After my 1993 SI article, the more skeptical UFO aficionados took Big Sur off of their lists. But the Big Sur UFO story resurfaced on the Internet, implausible as Jacobs's tale was. I received a complimentary copy recently of International UFO Reporter magazine (Hastings 2007) with a fourteen-page cover story by Robert Hastings on the same subject. Hastings apparently has no personal connection to the original project but has carefully reviewed what is known and Jacobs's postulates and added some fantasies and idle thoughts of his own. His lengthy write-up is sprinkled with numerous snide comments about SKEPTICAL INQUIRER, its staff, and members of the Committee for Skeptical Inquiry, and in passing calls my earlier effort in SI ". . . a dismissive but factually inaccurate summary of [the incident]. . . ." The Hastings rehash contains

Physicist/engineer Kingston A. George accepted an Air Force civil service position as an operations analyst in 1961 at Vandenberg AFB and retired in 1990 as chief of safety in Santa Maria, California. He worked on a wide variety of optical, radar, and telemetry tracking systems during his tenure and was a nationally recognized expert on such systems, continuing as a consultant until recently. He can be contacted at kingstong@verizon.net

a host of minor issues that are not worthy of rebuke, but there are three major items that need to be addressed.

The Image Orthicon (IO) and Optical System

The first item in the Hastings article is a brief Physics 101 analysis of optics by Mark Rodeghier, one of the editors of the International UFO Reporter. Rodeghier concludes that his analysis ". . . thus generally supports the observations and testimony of Jacobs and Mansmann." There are a number of serious objections to that conclusion.

The Image Orthicon telescope system in 1964, and some of the crew. Lt. Bob Jacobs is at far right holding a camera.

The IO was a very significant invention, especially useful in the early days of television because of its high sensitivity. It was called an "Immy" in the TV industry, corrupted into the term "Emmy" for the TV awards. It has a series of electron-multiplier stages to boost the output signal and can detect very dim stars to twelve or thirteen stellar magnitude—the naked eye sees sixth magnitude readily, but it has trouble at higher numbers. Brightness decreases by a factor of two-and-a-half as the numbers progress.

My 1964 report states that the BU Scope was set to 720 inches, indicating that a 3× Barlow magnifier was used to increase image size. The magnifier degrades the image intensity at the focal plane, so the sensitivity of the IO tube was "pushed" to compensate for this, with a consequent lowering of the dynamic range and resolution on the display kinescope.

The IO controls were set to a level just below the point of electron avalanche to prevent image or monitor screen "white-out." A very bright object causes a dip in the sensitivity of the photon detection layer—called blooming—which lasts for several frames. A tadpole effect is seen as the image moves across the screen, leaving a slowly shrinking and vanishing tail. In daylight, with the IO sensitivity in a normal range, we would see a tiny image of the missile tankage prior to burnout, even for a vehicle three or four hundred miles away. However, the background of a brightly daylit sky after engine shutdown was always too much for the small spotting telescopes used by the manual trackers, and tracking would halt.

When explosive events occur, such as reentry vehicle shroud-cover removal and RV separation, a fast-expanding, gassy exhaust cloud is seen, lasting only a very few film frames in the vacuum of space. It can be identified by printing enlargements of individual frames. Stars whiz through the projected film with regularity, the brighter ones with arcing tadpole tails—the apparent star motion, of course, is present because the telescope was being trained manually on the fast-moving target, modified by slight jerky errors of the azimuth and elevation wheel operators.

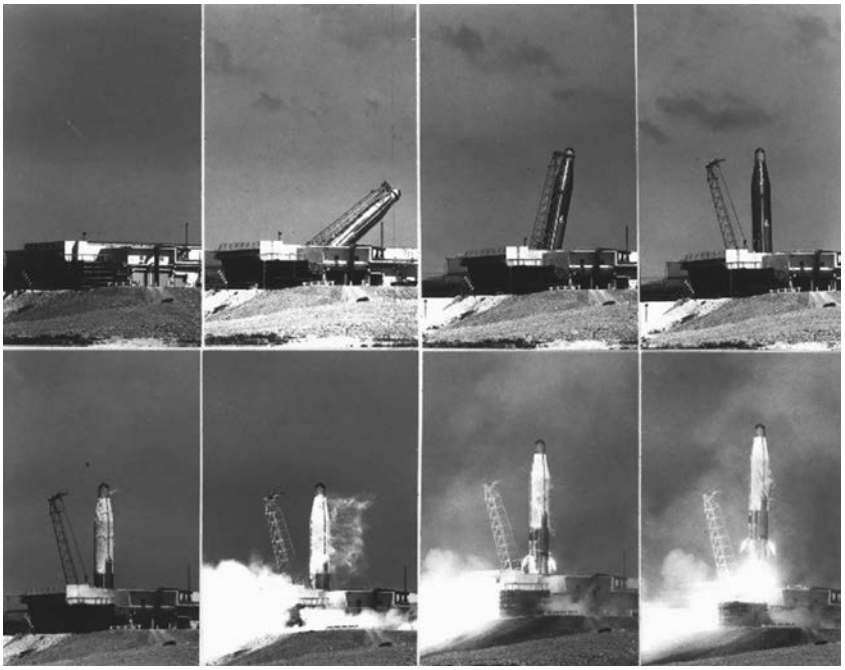
The Atlas vehicle, with payload shroud, is about ten feet in diameter and one hundred feet in length. At engine shut down, the vehicle is between 500 and 1,000 miles in altitude. The distance to the telescope at shut-down would have been at least 500 slant miles, growing to 2,000 miles or more at film run-out. The tank image length on the face of the IO tube (seven or eight arc-seconds) would be roughly twenty-seven thousandths of an inch at first, or perhaps twenty-four scan lines, diminishing to around two thousandths, or a single scan line, by the end of the viewing. The IO bloom from the big Atlas tank caused the largest white spot on the film but no "shape." Other much smaller objects provided smaller spots—less blooming effect—so we could eventually infer which spots belonged to known objects. The big main tank reflecting sunlight was all

that could be detected through the spotting telescopes used by the azimuth/elevation trackers but was bright enough for them to maintain track until film run-out.

With a deep bow to the fabulous sequential-scanning color HDTV systems of today, our primitive IO set-up of 1964 would not have produced something with a distinct shape. The film was a collection of energetic blobs in black-and-white that only made sense when the launch exercise was understood in detail. It was a matter of weeks of analysis before we finally unscrambled the meaning of what we had filmed and confirmed the SAC analysis. The Rodeghier analysis in Hastings's article is simply irrelevant given the low-grade optical capability of the 1964 BU system and its very poor resolution on film.

Energy Beams in Space

The second issue involves Star Trek devices. Perhaps readers are familiar with the roar of the Starship Enterprise passing through space and the brightly visible laser beams traded with Klingon cruisers. The vacuum of space does not permit sound travel or colorful side-visible rays of any kind. In his MUFON exposition, Jacobs suggests "energy beams" of some sort, but the type doesn't matter. Dust particles, ionized particles, or sustained gas clouds are required to detect a focused laser or energy beam, such as when a mist is displayed to identify lasers in a jewelry heist movie. What one might see if a laser was used in space would be a hot spot or meltdown of the outer skin of a target. Could the white spot turn even whiter? No, the BU Scope would not permit that kind of detail to be observed.



A series of images from an Atlas launch.

Hastings mentioned the northern lights as a type of light caused in the upper atmosphere by sun-generated particle streams. A relatively rare phenomenon at our latitude, the aurora borealis involves a huge number of sparse particle streams spread over a vast space above the arctic sky.

What Launch Did Jacobs Describe?

Jacobs's account indicates a launch "that may have occurred on September 2, 3, or the 15th with an Atlas type F or D." Film was exposed on nine launches in total, missing two due to weather or mechanical problems. The Vandenberg AFB launch summary from the 30 Space Wing Office of History indicates eleven launches took place during the month of September in 1964. Two of these were space launches toward the south from Vandenberg on September 14 and 23 and were of marginal interest to us at the time. Seven were Minuteman ICBMs on September 1, 8, 10, 15, 21, 23, and 29. The other two occurred on September 15 and September 22, an Atlas D nicknamed Butterfly Net and an Atlas D nicknamed Buzzing Bee. Buzzing Bee carried a simulated reentry vehicle warhead and decoys, duplicating the packages on the active (on-alert) Atlas F weapon system, and Butterfly Net carried an advanced reentry vehicle for study via terminal area radars.

Butterfly Net was launched in the morning, long after sunrise, with a bright sky behind it. The image orthicon would have been adjusted for daylight. The manual trackers were handicapped after engine shut-down, when the vapor trail of engine fuel was depleted some 240 seconds after lift-off. Their inferior spotting telescopes would not permit direct viewing for more than a few seconds. It was disappointing, as we were half-way through the project and had not yet scored as I had hoped. Could the crew have filmed something and kept it hidden from my knowledge? Not possible—I was totally "on top" of every inch of film exposed that whole month, and I was likely on site for the launch, although I was not on site for every one of them.

Buzzing Bee was launched more than a half hour before sunrise at Anderson Peak. The ICBM broke into sunlight well after lift-off, while the background sky was still dark and many

stars were still visible. The site was in complete darkness. Our "score" had come at last. Without a shadow of doubt, what we had captured, and what had excited Jacobs as well as many others, was Buzzing Bee. The launch dates, nicknames, and times are all easily verified by simple Internet searches.

One More Quandary: What about Mansmann?

Both Jacobs and Hastings mention SAC Major Florenz Mansmann Jr., who was the photographic support coordinator for the First Strategic Aerospace Division at Vandenberg AFB. I have reviewed post-retirement letters purported to be from Mansmann, and they indicate that he agrees, in general, with Jacobs's conjectures. He passed away, according to Hastings, in 2003.

Mansmann would have determined the photo requirements for every launch and issued directives to the 1369th Photo Squadron. The launch personnel were busy in those days, as more than one hundred test launches were taking place yearly in the early 1960s. I made more runs to the Squadron lab over the next decade than I could count, so my memory does not let me pick out particulars during that September. Owing to his substantial workload, Mansmann was only marginally interested in the Big Sur site and the purpose of the project. He visited the Anderson site only once that I can recall, in early September.

On September 22, about twenty films would have been processed, including those from the pad cameras and all the local tracking cameras. Within a few days, reduced 16 mm copies would be made and sent to a variety of analyst offices, including the SAC headquarters in Omaha, Nebraska. It was weeks before we heard anything about the sensitivity of our IO film. The preliminary report I wrote does not go into any detail of the launch, but the fact that I published it on or about October 13 (the date stamped on the title page) indicates that at least two weeks had passed without any clamp-down from SAC headquarters. Otherwise, I could never have mentioned it or even hinted at some sort of anomaly. Jacobs is totally wrong to suggest that the "men in black" appeared the day after the launch at a special showing.

Why would Major Mansmann agree with Jacobs? It is doubtful that in 1964 he had more than a small inkling of what the Buzzing Bee films showed—and even less interest many years later. Would he have supported his former "comrade in arms" after he was long retired and short on memory of those busy times? And might it have even been amusing to him? I remember Mansmann for his great sense of humor and friendly nature.

Conclusion

The only reason the film became top secret is because it revealed a weakness in the Atlas weapon system, which was our only on-alert ICBM at the time. All the original films of all launches would have been destroyed or recycled decades ago, or else today we would need a Pentagon-sized warehouse just to hold all of them. A couple of years after the master copy had been stored in a vault used exclusively for top-secret storage, I was asked if it could be destroyed to conserve space, and of course I approved.

The Western Test Range was very pleased by the hugely successful project. A 16 mm, forty-five-minute publicity film of the project was assembled in Hollywood by the Lookout Mountain Photographic Squadron shortly after the project. I wrote the script for the film, which included footage of operations, including some of Buzzing Bee. There was a copy of this film in my office for several years, but in shifting jobs and office assignments, it eventually vanished. Portions of it were used in the Air Force Quarterly Film Report, likely the Winter or Spring issue of 1965.

The Western Test Range gained an extraordinary new capability from the Big Sur project. Jacobs's conjectures may mystify and amuse many and even seem persuasive to those without an appropriate background. That, plus the fact that the physical evidence is long since gone, is likely why myths continue to surround and degrade the historical significance of the Big Sur adventure. □

Note

Except for the 1964 report, several references can be readily found on the Internet by a Web search for "Big Sur UFO." I have an original of the 1964 report and could provide an email copy on request.

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UFOs: An Assessment of Thirty Years of Official Studies in France

A detailed, critical re-examination of the main cases in three decades of 'official' French UFO studies finds serious defects and problems, some systemic. The cases do not lend support to the idea of extraterrestrial visits.

DAVID ROSSONI, ERIC MAILLOT, AND ERIC DÉGUILLAUME

France is one of the few countries that maintains a governmental department that collects and investigates UFO reports, more than sixty years after the birth of this phenomenon in the West.

This unit, sponsored by the National Centre for Space Studies (CNES in French), was created in 1977 under the name Study Group for Unidentified Aerospace Phenomena (GEPAN in French). At the time, France had a major infatuation with the UFO phenomenon. The number of cases reported rose considerably, even more so after a wave of sightings in 1973–74. The thirst for alternative theories that

developed after the May 1968 riots and their social and political aftermath, as well as the impact on the imagination induced by man's first steps on the Moon in 1969, created in the following years a favorable cultural climate for the idea of extraterrestrials visiting our planet.

Claude Poher, GEPAN's founder, became very enthusiastic about the topic in 1969 after meeting with famous UFOlogist and astronomer J. Allen Hynek during the preparation of a Franco-American scientific experiment to be carried out aboard the Skylab space station. Hynek showed Poher the inquiry files he had gathered when he was a scientific adviser to the U.S. Air Force. As soon as he got back to France, Poher immersed himself in the no less famous "Condon Report," which had just ended the Project Blue Book. He came into contact with a privately funded UFO research group and, in his free time, started carrying out his own inquiries and statistical studies. For many years, he lobbied within the CNES to create a department dedicated to the scientific study of UFOs. He achieved his aim on May 1, 1977, even though many of CNES's members would always remain hostile toward the department.

To everyone's surprise, Poher left his position as director of GEPAN at the end of 1978. Today, we know that his decision mainly resulted from the refusal by GEPAN's scientific council to publish his works. His writings were very questionable from a scientific point of view and concluded that nonhuman machines were present in our skies. He was replaced by Alain Esterle, a young engineer trained at Paris's Ecole Polytechnique and at the University of Washington. Under his management, the unit gained a little scientific credibility, but his investigation team clearly remained under the influence of the extraterrestrial hypothesis. In turn, Esterle was induced to leave his duties in 1983 after his unsuccessful attempt to undertake experimental research in magnetohydrodynamics (MHD), a technology that some people then thought was involved in UFO propulsion.

His deputy, Jean-Jacques Velasco, an optical technician, succeeded him. As the director of a tiny department now reduced to a secretary and himself, with very little supervision from within his hierarchy, he multiplied methodological errors and ambiguous statements relayed by the media for more than twenty years. His missions were partly redefined in 1988 when GEPAN became the Atmospheric Re-entry Phenomena Expertise Department (SEPRA in French). The new unit was mainly in charge of identifying objects entering Earth's atmosphere above France.

In 2004, Mr Velasco, about to retire, published a book in which he affirmed, "as the SEPRA director," that we were being observed by intelligent extraterrestrial beings. As a sanction, the director of the French space agency reassigned Velasco to another department. The CNES's "UFO department" wasn't dissolved but restructured once more: in 2005, it became the Group for Study and Information on Unidentified Aerospace Phenomena (GEIPAN in French), directed by Jacques Patenet, an aeronautical engineer, and under the control of a new scientific council presided by Yves Sillard, a former general director of the CNES, who permitted the creation of the GEPAN in 1977.

For more than thirty years now, successive directors of this department have been inclined to believe that their inquiries demonstrate the existence of unidentified aerospace phenomena (UAP)—to use the terminology in effect within the department—and that UAP are resistant to any available explanation. Poher and Velasco personally assert that at least some of them are artificial objects of extraterrestrial origin.

A similar opinion is still defended less openly by Patenet and Sillard. Their conviction is allegedly "based on evidence collected in France with maximum strictness for a large part." After sorting them, an important number of cases would remain without any explanation, even after "detailed inquiry." According to them, the thesis of extraterrestrial visitors would be "the only one…which, by now, brings a potential prospect for the explanation of phenomena, whose existence is by the way unquestionable."[1]

For any scientific mind, such statements require hard evidence. We decided to examine in detail what in their works would suggest a preference for the extraterrestrial thesis rather than less exotic explanations. [2]

The "variable-geometry" statistics given to the media already show that the directors' claimed methodological strictness has too rarely been applied. Actually, the classification of numerous cases poses a problem. In March 2007, GEIPAN started to make its records available online to the public.[3] We can now examine most of the cases processed since the unit's creation, from conclusively explained cases (A classified UAP) to mysteries unsolved after inquiry, despite the quantity and quality of available data (D classified UAP). In between are probably explained phenomena (B classified UAP) and unworkable cases lacking sufficient data (C classified UAP).

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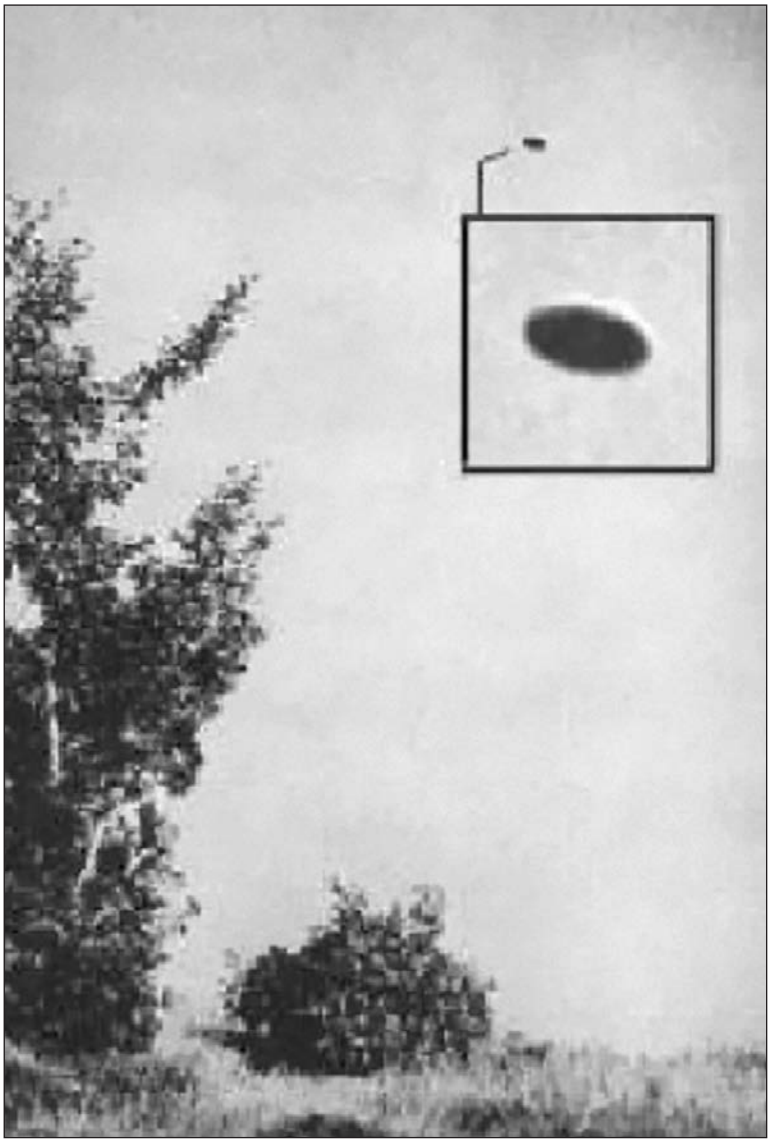
A quick review of these "Class D aerospace phenomena" is enough to ascertain that logical and simple explanations were either not properly entertained or were arbitrarily ruled out. The most elementary mistakes—such as confusing objects of astronomical origin, like Venus or the Moon, with UAP—are numerous. Other events labelled UAP were training sessions by the aerobatic demonstration team of the French Air Force; an unidentified aerospace phenomenon fleetingly seen by a policeman, which was actually electric arcs on frozen catenaries created by a train; and an observation of something above a lake that was, in fact, nothing more than a child's balloon. One case even involved an alleged mark on a soccer field without any associated aerial phenomenon (Toussus-le-Noble 2001). GEIPAN's records teem with such "false" D classified UAP.

SEPRA also didn't do well on sightings that were likely due to reentry of debris into the atmosphere. An obvious atmospheric reentry described in Martinique (Fort de France 1987) and an Aurigid meteor shower seen by pilots (AERO 1998-08-01514) are still D classified UAP. The reentry of an element from a Soviet Proton rocket on November 5, 1990, causing a wave of sightings across the country, provides insight into mistakes made by SEPRA. The inability to identify the phenomenon from its multiple descriptions (though its characteristics are well known, since William K. Hartmann's work on the matter is part of the Condon Report), vagueness, and factual mistakes are all apparent. Not to mention the discrepancy between the careful official statements from the department and the personal opinions of its director, who was ready to unduly reject the correct explanation, ascribing an allegedly "mysterious" nature to the case.



This photograph, taken by André Fregnale on July 18, 1952, at Lac Chauvet, France, was studied by Claude Poher, director of GEPAN. Poher deemed that the picture was not a fraud but rather the real article. The photograph is part of a collection of photos that have been filed and studied by the French GEPAN and the SEPRA state financed investigation committee. (source:UfoCasebook)

We have reexamined the main case studies, focusing particularly on the nine observation reports submitted by the department in charge as the most conclusive among thousands of collected reports. Some of them are known worldwide: hundreds of press articles, books, and Web sites mention the Trans-en-Provence case. In 2001, Popular Mechanics magazine summarized the prevailing idea showing it as "the most complete and carefully documented sighting of all time."[4] Nevertheless, our own inquiries revealed a series of nearly systemic mistakes.

First of all, CNES's investigators often excused themselves from thoroughly checking the variety of possible mundane explanations for a given case—even though there are only a few such possibilities when the case is well documented—or have hastily dismissed such explanations. As an example, the descriptive details (apparent shape, noise, method of take off, etc.) reported about the amazing object seen at Cussac (August 29, 1967)—a "close encounter of the third kind" that became as famous in France as the one in Kelly-Hopkinsville in the United States—are consistent with a light turbine-powered helicopter (probably an "Alouette II"). Even though no con-

vincing alternative explanation was proposed to this hypothesis, the department rejected it without even the most minimal investigation. In the Bize-Minervois case (January 14, 1974), the shape and behavior of the "unexplainable" phenomenon highly suggests a crop-dusting helicopter, but this likely explanation in this wine-growing area has also been arbitrarily dismissed. During the inquiry about the meeting of "Blaise"—pseudonym of the driver—and a flying machine that allegedly brought his car to a standstill (January 26, 1981), GEPAN wouldn't explore the possibility of confusion with a medium helicopter (possibly a "Super Frelon"), despite elements in the testimony suggesting that cause.[5]

A strict methodology must be followed to extract reliable data from observation reports. Since the end of the 1970s, the presence of some physical evidence has been vital to demonstrate the reality and originality of the reported phenomenon. But the investigators have often put forward physical traces to which causal links with the alleged phenomenon were very fragile or even clearly absent.

This recurring problem can be seen in many "major" cases. The Christelle case (November 27, 1979) claims that a thirteen-year-old girl was terrorized by the landing of a flying saucer and the sight of one its crew. Even though there was a suspicious series of amalgamated events, such as a neighbor of the girl working outside his house under the high-beam headlights of a big car, GEPAN focused its investigation on a so-called "landing track" discovered by chance by a police constable. Its aspect and location were shown to be inconsistent with the indications given by the child during reconstruction in the field. In the aforementioned "Blaise" case, the problems that affected the automobile were likely due to a misfiring system and to the driver's panic rather than to any interaction with an alleged cigar-shaped object.

In the Trans-en-Provence case (January 8, 1981), a saucer-shaped object allegedly left two concentric "ground traces," according to the only witness. According to the police constables who examined the location, these marks were clearly left by the tires of a car "peeling out" on a part of the property where vehicles had recently operated. This obvious lead was never followed by GEPAN. Without this doubtful "material evidence," which would actually be used to back up the story of a known joker, the department would have ignored this incident.

A physical effect—also questionable—has been put forward in the Amaranth case (October 21, 1982) to similarly back up the testimony of a biologist from northeastern France who stated that an unidentified flying object had spoiled a flowering plant in his garden. The floral clusters of the amaranth were in fact simply withered—a very natural phenomenon after an early frost in autumn—but the scientific occupation of the witness prevented the GEPAN from questioning the credibility of his story, though many details suggested a complex visual illusion or hallucination.

The case of Air France Flight 3532 (January 28, 1994)—the case most widely covered by the media in the last fifteen years in France—shows a similar probable cause. Here, the crew of an airliner caught sight of a gigantic bell-shaped object above Paris, detected by military radar at the same time—according to SEPRA. But, obviously, this correlation is erroneous: the radar track—probably that of a light aircraft without a transponder flying close to the radar horizon—was actually located on the right and near the plane, while the phenomenon was seen far away on its left. Even so, nothing allows us to formally rule out the possibility that the alleged UAP could have actually been a conventional object observed at an unusual angle (notably, the pilots' descriptions evoke a "Super Guppy," a wide-bodied cargo aircraft).

Moreover, many cases that are referred to today were investigated a long time after the alleged events occurred: four years after Bize-Minervois, five years after Air France Flight 3532, and eleven years after Sauvigny-le-Bois and Cussac. In 1978, GEPAN's Scientific Council advised against looking into cases so old. Such long-delayed inquiries can suffer many potential problems.

First of all, potential evidence could have disappeared or been disturbed. Also, belated interventions in studying alleged physical evidence—added to rather deficient methodology about sampling, preserving, and analyzing the collected samples—would make it impossible to dispel doubts about the real nature of an event. This is especially problematic in the Trans-en-Provence and Amaranth inquiries.

In the same way, some basic checks became nearly impossible. For example, in Sauvigny-le-Bois (February 5, 1967), the witnesses could have been deceived by the lights of an agricultural vehicle turning in a field or by a delivery truck dumping rubbish along the axis of observation. The place's topography

and the presence of layers of mist near the ground, likely to spread light sources and produce unusual optical effects, would support those simple hypotheses, but they became "nonfalsifiable" during the long-delayed inquiry.

Such long delays in investigating phenomena also have an inevitable impact on eyewitness testimonies. After time, testimonies become distorted and often full of false memories. For example, the study of successive accounts of the two young eyewitnesses in Cussac shows a multiplication of original elements that elevates their story to the realm of fantasy after only a few months lapse. The Bize-Minervois case is based on two allegedly independent testimonies. Actually, the age of recalled facts and a process of mutual influence between the witnesses—who talked together before the arrival of CNES's agents—again led to the creation of false memories.

The use of various, unscientifically validated methods to assess the physical estimations given by the witnesses, especially angular sizes, don't make the investigations easier. Once the witnesses's good faith is "proven," the investigators have a naïve tendency to consider their estimations as reliable, even more so if in their minds the information comes from people they consider to be "qualified" witnesses (scientists, air traffic controllers, soldiers, etc).

In the case of Flight 3532, the occupation of the main witness was used to eliminate any possibility of mistake from the start, as if aircraft pilots are immune from perceptive and/or cognitive illusions. It is also true in the Amaranth case, in which the witness was considered particularly reliable despite inconsistencies in his narrative. This erroneous idea often leads the investigators to not seek other persons able to confirm or invalidate the declarations of those witnesses.

The lack of long-term follow-up is also obvious in the files. Once an inquiry is over, its conclusions are hardly ever called into question, even when new elements arise to possibly explain an unsolved case. That is what happened in the Nort-sur-Erdre case (September 7, 1987), in which a young boy recorded the noise of a mysterious bright object he allegedly saw. The witness admitted in 2005 that he committed a hoax. However, in October of 2008, the case was still presented as "unexplained" on GEIPAN's Web site.

We can see that the "facts" quoted in support of the boldest statements of the CNES's "UFOlogists" are not positive support of phenomena unknown to science. Even less are they proof of extraterrestrial visits. In fact, even if they had to study a case caused by a genuine "exotic" object, they probably could not have managed to articulate it properly because of their poor research methodology.

In 2004, Mr Velasco, about to retire, published a book in which he affirmed, "as the SEPRA director," that we were being observed by intelligent extraterrestrial beings. As a sanction, the director of the French space agency reassigned Velasco to another department.

But let's end on a positive note: notably since the publication of our critical work about its functioning, GEIPAN has started to correct some of its errors during the past year and has shown a change in its assessments, the immediate consequence being the drastic drop in the number of new D classified UAP. Patenets also agreed this autumn (2008) to check the explanatory hypotheses we proposed to him for dozens of cases wrongly classified as D. The total percentage of unexplained cases—curiously announced as reaching 28 percent at the launch of GEIPAN's Web site—should thus soon decrease and arrive at a rate more representative of the actual contents of the files. □

NOTES

1. Yves Sillard (editor), Phénomènes aérospatiaux non identifiés, un défi à la science, Paris: le Cherche-Midi, 2007 (in French).

2. David Rossoni, Eric Maillot et Eric Déguillaume, Les OVNI du CNES: 30 ans d'études officielles (1977–2007), Valbonne: Book-e-Book, 2007 (in French). Foreword by Jean-Pierre Swings (University of Liege, Belgium); postscript by Jean Bricmont (University of Louvain-la-Neuve, Belgium). Available online at www.book-e-book.com.

3. GEIPAN's official Web site: www.cnes-geipan.fr (in French).

4. Jim Wilson, "When UFOs land," Popular Mechanics, May 2001.

5. Many of the strangest cases are due to mistaking observations of helicopters for UAP. These material "nuts and bolts" objects move in all directions (vertically, laterally, and longitudinally), fly slowly just above the ground, and land and take off obliquely or straight up, in various places inaccessible to planes. They are equipped with navigation lights, landing lights, anticollision lights (strobe lights) of different colors, and sometimes powerful searchlights. Under certain conditions of observation and circumstances, they can provide astonishing visions.

Roswell Update: Fading Star?

DAVE THOMAS

The Roswell incident is often held up as the best-documented case of alien visitation. It involves the alleged crash of an alien craft near Roswell, New Mexico, in 1947 and the purported government cover-up of the debris and alien bodies. Something actually did crash in the desert near Roswell in 1947—but it wasn't from outer space. It was almost certainly launched from Alamogordo, New Mexico, as part of a top-secret project (Mogul) in which the United States attempted to spy on Soviet nuclear tests by positioning microphones high in the atmosphere on arrays of balloons (Thomas 1995).

By the fiftieth anniversary of the Roswell incident in 1997, Roswell was all the rage. It was featured on magazine covers, provided the basis for several films and television shows, and was synonymous with aliens and UFOs. The city's annual UFO festival attracted 40,000 visitors that year. One of the enticements of the 1997 gathering was the presentation of some long-awaited, physical proof of the alien crash landing. The "proof" was revealed on schedule, provided by one Russell Vernon Clark, a San Diego chemist: it was metal, supposedly from the "crash," with unusual isotopic ratios, proving its alien nature. The finding flopped. For one thing, "non-earthly" isotopic mixtures can be cooked up in college chemistry and government labs. Also, Clark's claim that the sample contained germanium-75 (an element so radioactive that it would decay into other elements in just days) was ridiculed, causing him to later acknowledge that the evidence was "inconclusive" (Fleck 1997).

Other than the Roswell incident's star fading, not much has changed in the years since then. Stanton Friedman still tours the UFO fests, and Tom Carey and Donald Schmitt still pump out Roswell-related UFO television projects and tabloid books. A Sci-Fi channel project in 2002 promised hard, scientific proof of aliens at Roswell, but all that was delivered was a barren "archaeological dig" led by Bill Doleman and a very dubious attempt by David Rudiak to read Army memos from grainy 1947 photographs (Thomas 2003).

How much clout did the Roswell incident enjoy at its sixtieth anniversary in 2007? It's quite difficult to find figures for the 2007 event, but a Roswell Daily Record article on the 2008 festival notes: "Officials from the International UFO Museum and Research Center stated this year's 'Roswalien Experience' was a success as attendance jumped more than 25 percent. Julie Shuster, the museum's executive director, said 7,216 UFO enthusiasts attended the lectures, workshops,

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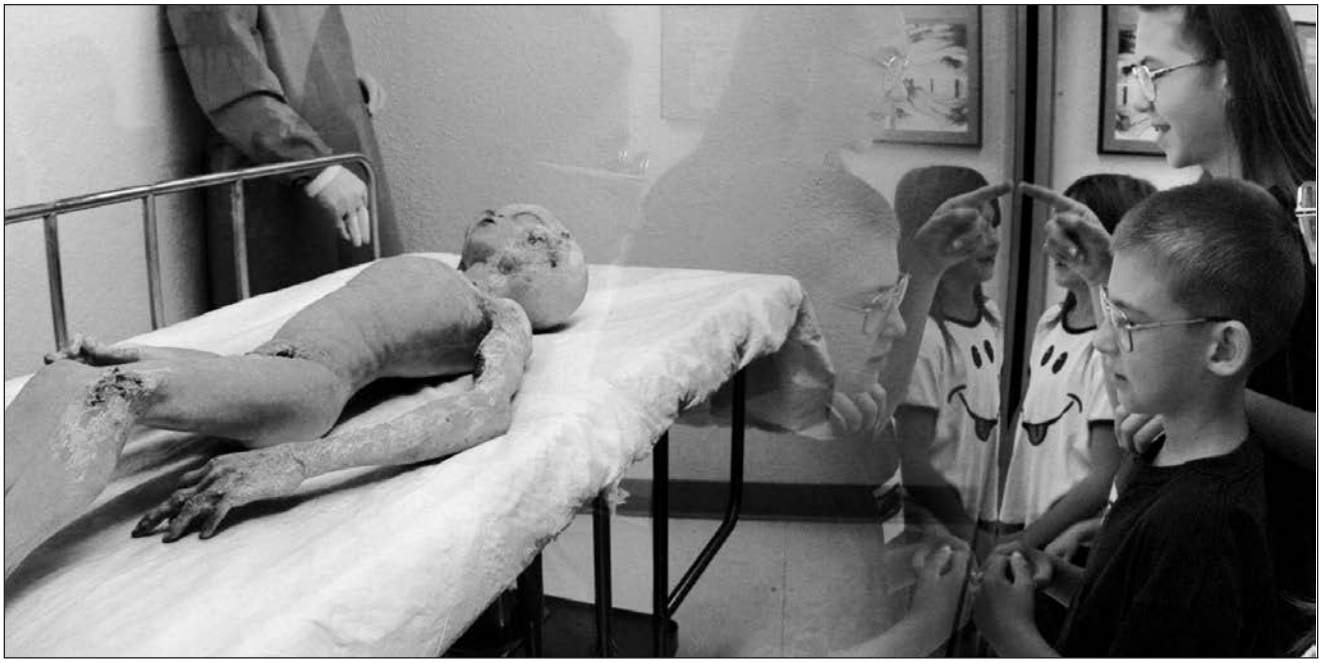

An "alien autopsy" exhibit at the International UFO Museum and Research Center. The "autopsy" was a hoax.

celebrity appearances and other events held during this year's festival from Thursday through Sunday. . . ." (Toney 2008). If the 2008 attendance of 7,216 was 25 percent bigger than the previous year's, it follows that 2007's sixtieth-anniversary attendance was a mere 5,773. That's only a seventh of the 1997 total and a clear sign that Roswell's "fifteen minutes of fame" is running out.

The sixtieth-anniversary "surprise" at the 2007 fest was the publication of a new book by Schmitt and Carey, Witness to Roswell (Carey and Schmitt 2007). The centerpiece of the book was a new affidavit allegedly written by Walter Haut, the Army base public information officer in 1947. Haut, who died in December 2005, stated in a 1993 affidavit that he was convinced the material recovered was "from outer space," that Col. Blanchard had seen the material, and that Major Jesse Marcel told him (Haut) the material photographed in General Ramey's office was not the same debris he had seen. Haut's new "deathbed" affidavit went way beyond this and offered this shocking new detail: on the morning of July 8, well before the debris was flown to Fort Worth, Texas, for examination by General Ramey, it was discussed at a briefing attended by Marcel, Col. Blanchard, counterintelligence Captain Cavitt, Brigadier General Roger Ramey, and his chief of staff, Col. Thomas J. Dubose. This would strongly contradict the common understanding that General Ramey never saw the debris until it was flown out from Roswell the afternoon of July 8. Numerous other new claims, such as Haut witnessing alien bodies, also spiced up the new statement.

However, even staunchly pro-Roswell researcher Dennis Balthaser attacked the alleged affidavit, writing: "We have learned that Walter Haut did not write the affidavit he signed in 2002, but rather it was prepared for his signature based on comments and remarks Haut had made over a period of time to Schmitt, Carey and others. . . . Neither Schmitt nor Carey were present when Walter supposedly signed the affidavit, and the witness's last name on the 2002 document is not shown . . . the oral history videotape of Walter Haut done on November 15, 2000, and copyrighted by Wendy Connors and myself shows a man that couldn't remember where he took basic training, names, dates, etc., while the 2002 affidavit is very detailed and precise . . . . Why was it necessary for Major Marcel to fly debris from Roswell to General Ramey's office in Ft. Worth, since they had all handled the debris in the meeting and apparently set up the cover-up operation?" (Balthaser 2007).

Is Roswell still the "best" UFO incident? If it is, UFO proponents should be very, very worried. □

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An Astronomer Looks at UFOs

A Lot Less than Meets the Eye

ANDREW FRAKNOI

When I talk about UFOs in my introductory astronomy classes, I always tell my students that I absolutely believe in UFOs. After a brief pause for incredulous stares, I ask them to think about what the term UFO actually means. I explain that I fully believe there are objects in the sky that the average person may not be able to identify. This does not mean, however, that no one can identify these objects. It only means that they could appear "unidentified" to someone who is not familiar with the sky or with the full range of sky phenomena that can surprise a novice.

Indeed, upon more careful investigation, many so-called UFOs turn out to be perfectly natural objects or processes in the Earth's atmosphere or beyond. As the late Carl Sagan emphasized, "Extraordinary hypotheses require extraordinary proof." Surely, the notion that some mysterious phenomenon you briefly observed in the sky must be an interstellar spacecraft (and not a human craft, meteor, or a bright planet) qualifies as such an "extra-ordinary" hypothesis! Yet, amazingly, given the number of UFO incidents believers report, not one UFO has left behind any proof—a piece of spacecraft material or machinery (or even a sandwich wrapper) that laboratory analysis has shown to be of clearly extraterrestrial origin.

It's also remarkable how unlucky the UFO occupants are in their choice of people to kidnap. Never do "aliens" seem to snatch a person with a good knowledge of astronomy or physics or someone with high-level government clearance. Time after time, their "victims" turn out to be homemakers, agricultural workers, or others whose relevant knowledge base seems to be limited to reading UFO enthusiast literature.

Even UFO sightings turn out to be reserved (for the most part) for those who have not studied the sky in any serious way. Although the world's supply of professional astronomers is not much larger than the population of Wasilla, Alaska, the world has many tens of thousands of active amateur astronomers who spend a great deal of time observing the sky. You would think that if UFOs really are alien spacecraft, a large majority of reported sightings would come from this group. Yet, unsurprising to astronomers, you almost never get UFO reports from experienced amateurs whose understanding of what they see in the sky is much more sophisticated than that of the average person.

All of which does not mean that astronomers in general are pessimistic about the presence of intelligent life on planets around other stars. Indeed, many observations over the last few decades have increased the level of optimism in the astronomical community about the potential for life to exist out there. Primary among these is the discovery of more than 300 planets around relatively nearby stars, which certainly shows that planetary systems like our own may be far more common than we dared to hope. We just don't think that intelligent aliens are necessarily visiting Earth.

The problem is that the stars are fantastically far away. If our Sun was the size of a basketball (instead of 864,000 miles across), Earth would be a small apple seed about thirty yards away from the ball. On that scale, the nearest star would be some 4,200 miles (7,000 km) away, and all the other stars would be even farther! This is why astronomers are skeptical that aliens are coming here, briefly picking up a random individual or two, and then going back home. It seems like an awfully small reward for such an enormous travel investment.□

Andrew Fraknoi is chair of the astronomy department at Foothill College near San Francisco and senior educator at the Astronomical Society of the Pacific. He is a fellow of CSI, specializing in debunking pseudoscience connected with astronomy. Asteroid 4859 was named Asteroid Fraknoi by the International Astronomical Union to recognize his contributions to the public understanding of astronomy, but he is eager to reassure readers that his is an extremely boring main-belt asteroid that is in no danger of hitting Earth.

The Trained Observer of Unusual Things in the Sky (UFOs?)

JAMES McGAHA

Unfortunately, UFO reports seldom if ever come from anyone really knowledgeable in trained observation of the skies and unusual phenomena. Nor do they come from those who understand perceptual issues and how beliefs and expectations can influence the interpretation of unidentified phenomena. People often think pilots and police officers are trained observers in these regards, but experience has repeatedly shown that they are not. James McGaha, an astronomer who has spent thousands of hours observing the sky, is a retired Air Force C-130 pilot and a longtime analyst of UFO claims and reports. He is concerned with misunderstandings about what makes a good observer. In his view, a good observer has the skills, knowledge, experience, and ability to critically analyze what is observed in the sky (whether natural, rare, or unfamiliar). The observer has to a) observe without prejudice, b) accurately record what was observed, and c) evaluate the data. Listed below are examples of basic astronomical, psychological, and perceptual knowledge needed to identify a UFO—important factors no trained observer would lack. Also given are potential causes of lights in the sky and some perceptual and psychological aspects of interpreting reports. All are excerpted from McGaha's presentation "The Trained Observer," which he gives to skeptic and scientific groups.

—The Editor

Examples of Astronomical Knowledge Needed

- ∑ Position of:
  - o Mercury, Venus, Jupiter, and Saturn
  - o Twenty-five Brightest Stars
- ∑ Coordinate System:
  - o Horizontal
  - o Equatorial
- ∑ Elongation, Conjunction, and Opposition
- ∑ Diurnal Motion
- ∑ Ecliptic Motion
- ∑ Scintillation
- ∑ Atmospheric Extinction
- ∑ Atmospheric Refraction
- ∑ Magnitude Scale
- ∑ Meteors, Fireballs, and Bolides
- ∑ Meteor Showers
- ∑ Zodiacal Light
- ∑ Zenith and Zenith Distant
- ∑ Sidereal time

Areas of Expertise Needed

- ∑ Astronomy
- ∑ Atmosphere
- ∑ Aeronautics
- ∑ Physics
- ∑ Physiology of Visual Illusions
- ∑ Human Beliefs:
  - o Perception and Interpretation
  - o Psychology
  - o Sociology
  - o Emotions
- ∑ Visual Perception

Astronomer James McGaha is director of the Grasslands Observatory, Tucson, Arizona. He is a pilot and retired U.S. Air Force major, a longtime evaluator of UFO reports and claims, and a scientific consultant to the Committee for Skeptical Inquiry. E-mail: mcgaha@skepticus.com.

Human Perception:

Studies for more than one hundred years have demonstrated how unreliable human perception actually is. People are not objective recording "instruments."

Belief:

There is a strong human desire to believe the myth that alien spacecraft along with alien occupants are visiting the Earth. These beliefs are perpetuated by wildly incorrect reports, claims, and statements made by totally unqualified individuals. There is no empirical evidence that such visitations are occurring now or have occurred in the past

Perception, Belief, and Psychological and Sociological Understanding Needed

Psychology/Sociology:

- ∑ Memory Bias
- ∑ Confabulation
  - o False Memory
- ∑ Interference Theory
- ∑ Stress
  - o Impact on Accuracy
- ∑ Lying
- ∑ Hoaxes
- ∑ Eyewitness Memory
  - o Forgetting Curve
  - o Contamination
  - o Systemic Error
  - o Due to Data Collection
- ∑ Sensory Information Errors
  - o Acquiring
  - o Interpreting
  - o Selecting
  - o Organizing

Lights in the Sky—Causes

- ∑ Planets
- ∑ Stars
- ∑ Moon
- ∑ Fireballs — Bolides
- ∑ Aircraft
- ∑ Missile Launches
- ∑ Satellites
- ∑ Balloons
- ∑ Searchlights
- ∑ Test Clouds
- ∑ Flares
- ∑ Sprites
- ∑ Ball Light
- ∑ St. Elmo's Fire
- ∑ Sun Dogs
- ∑ Halos
- ∑ Glories
- ∑ Mirages
- ∑ Scintillation
- ∑ Dazzling
- ∑ Clouds
  - o Lenticular
  - o Noctilucent

The Stephenville Lights

What Actually Happened

One of the most widely publicized UFO reports of the past few years is the so-called Stephenville Lights of January 8, 2008. Stephenville, Texas, is a small town (population 17,000) one hundred miles southwest of Dallas. Between 6:15 and 7:30 PM local time, forty witnesses reported seeing very bright lights. They made no sound. They were said to be slowly moving, then moved quickly. Many said the lights were pursued by military aircraft. Some said they sped away at 3,000 miles per hour. Some said they saw a single object one mile long. One said it was a life-changing experience.

A local Stephenville newspaper reported the story on January 10, and a public affairs officer for the Naval Air Station, Joint Reserve Base at Carswell Field, sixty nautical miles away, was quoted as saying, "There were no F-16s from this unit operating." (That proved to be wrong.) The national media picked up the story about the lights, and it was featured on Larry King Live on January 18.

Astronomer (and retired Air Force pilot) James McGaha (see the accompanying "The Trained Observer" piece) investigated. On January 17, he contacted the Federal Aviation Administration and asked if any aircraft that night had entered the Brownwood Military Operating Areas (MOAs). These MOAs begin ten miles southwest of Stephenville—a 3,200-square-mile area used for military aviation training. The FAA informed McGaha on January 18 that a group of four F-16s from the 457th Fighter Squadron entered the operating area at 6:17 PM local time. A second group of four F-16s entered the same area at 6:26 PM. They departed at 6:54

and 6:58, respectively. The time the aircraft were flying in the MOA accords with the time of the sightings.

On January 18 McGaha contacted the 301st Fighter Wing Public Affairs Office and asked if they made a mistake in saying their aircraft had not been in the MOA that night. They called him back and informed him of their error. On January 23, they issued a press release publicly acknowledging the error, stating that F-16s had indeed been flying in the MOA that evening.

What were the aircraft doing? McGaha says they were flying training maneuvers that involved dropping extraordinarily bright flares. The LUU/2B/B flare is nothing like the standard flares you might think of. These flares have an illumination of about two million candlepower. They are intended to light up a vast area of the ground for nighttime aerial attack. Once released, they are suspended by parachutes (which often hover and even rise due to the heat of the flares) and light up a circle on the ground greater than one kilometer for four minutes. The flare casing and parachute are eventually consumed by the heat. At a distance of 150 miles, a single flare can still be as bright as the planet Venus.

McGaha also describes the testimony of a medical helicopter pilot, a retired U.S. Army pilot, flying that night, who saw the lights. He said: "I saw multiple military aircraft, with some dropping flares, in the area of the Brownwood 1 MOA."

Much mischief was caused by a Mutual UFO Network (MUFON) report on the incident issued on July 4, 2008. MUFON members tend to promote the idea that UFOs are real and in fact are extraterrestrial spacecraft. The seventy-six-page report is mostly an analysis of FAA "raw" radar returns for the period in question, plus eight eyewitness reports.

These raw data contain 2.5 million points of noise and scatter. MUFON's report selected just 187 of these points to contend that radar had tracked a huge "object" at least 524 feet in size, traveling near the Western White House (the Bush ranch, which is fifty miles southeast of Stephenville). "MUFON's radar analysis is nothing more than cherry picking the 187 targets out of 2.5 million points of noise and scatter to make a track moving forty-nine mph for over one hour," says McGaha. "This analysis is absurd!"

Some MUFON witnesses described "very bright lights similar to the intensity of burning magnesium" and said they saw flares dropped from aircraft. Others said such things as "these were not any known aircraft" and the objects were stationary at times but also "moved at a very high rate of speed." But these witnesses were not trained observers, McGaha says. "How did they know the altitude, velocity, size, and distance of an unknown object?"

There were lights in the sky, McGaha concludes. "There were F-16s flying in the Brownwood MOAs, and they did drop flares. The F-16s did not react to any unknown targets, and radar did not detect any unknown targets."

"The untrained witnesses/observers were seeing nothing more than F-16s and flares. Stephenville is nothing more than connecting 'lights in the sky' to form a very large mysterious object, an object that many that night thought was from another world. But nothing otherworldly happened around Stephenville on January 8, 2008," says McGaha. □

Social Security vs. UFOs

Q. Do more people believe in UFOs than in Social Security?

☐ Yes ☐ No

Answer: No. The Employee Benefit Research Institute, a nonprofit research group, actually investigated this frequently cited statistic and found that 71% of those surveyed had greater confidence in the future of Social Security than in the existence of UFOs.

—Q&A item from a story on twenty-first century retirement, John Waggoner, USA Today, August 8, 2008

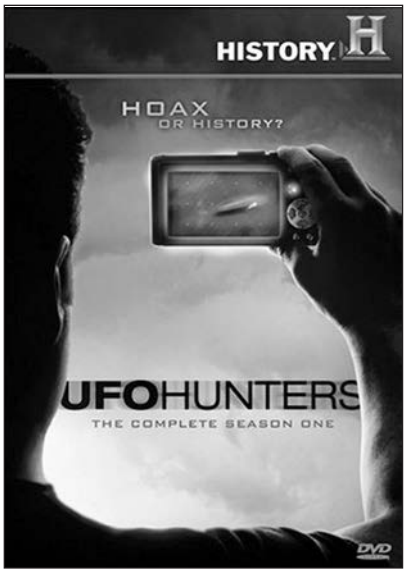
Same Planet, Different Worldviews

TYLER A. KOKJOHN

UFO Hunters. Season One DVD set. A&E Home Video, release date August 2008. $39.95.

Selecting the most compelling unidentified flying object cases and unleashing powerful scientific methods to analyze the objective evidence, the UFO Hunters team sifted the data in an attempt to separate fact from fallacy. Despite some limitations imposed by a history-oriented theme, UFO Hunters visited far-flung sighting locations, conducted independent investigations, and collected evidence to reach its challenging goal.

Notwithstanding its promise and History Channel patronage, I would warn viewers that the program is slanted toward the UFO true believer community. Judged on investigatory completeness and overall scientific caliber, the series is a disappointing failure. Regardless of the presence of a nonbelieving scientist serving as an advisor, viewers will note repeated instances in which the team jettisons fundamental scientific principles in favor of fantasy, overlooks reasonable explanatory alternatives, and simply succumbs to the temptation to invoke conspiracy and cover-ups when they have no substantive evidence in hand.



Promoted as an effort to separate fact from fiction, it was disconcerting to watch the team all too frequently manufacture its own myths. Many of their conclusions are merely examples of outrageous and ludicrous logical gymnastics essential to keep belief alive in the face of mounting contrary evidence. In some instances, viewers will see breathtaking examples of fantastical thinking and misrepresentations of fact that are completely audacious.

For those with the fortitude and desire to get right to the juicy stuff, the episode "Alien Contact" is prime material. Ironically, this show begins with a look at the Search for Extraterrestrial Intelligence (SETI) program and a meeting of the minds between scientists seeking evidence of intelligent life in the far reaches of outer space and the UFO hunters who believe such beings are already here. Upon interviewing a witness relating a history of serial UFO sightings, team leader Bill Birnes declares that this person is a human-ET hybrid. He then spins a truly incredible supporting back story invoking shadowy G-men recruiters and secret federal programs dedicated to such malevolent undertakings. Going further, and avoiding any definitive genetic experiments that might reveal human-alien hybridization, the team formulates and tests (in an uncontrolled fashion) a truly preposterous hypothesis regarding serological markers of alien abduction. This particular set of experiments was literally something only the UFO hunters could perform. Lacking any credible scientific basis or medically defensible rationale, scientists investigating this topic at an accredited U.S. organization would almost certainly face summary rejection by institutional review boards charged with overseeing all research involving human subjects. As amateurs, the UFO Hunters are not subject to such safeguards.

The most troubling aspect of UFO Hunters is that the science it employs is more an affectation camouflaging weak investigative strategies than a functional and incisive tool. Viewers unfamiliar with scientific analysis, its inherent limitations, and the nuances involved in the conduct of rigorous, controlled experiments may be left with the impression that the case for extraterrestrial visitation is far stronger than the evidence warrants. In some instances, these erroneous notions may persist because the team deftly declined to perform a complete investigation or never bothered to pursue obvious and necessary questions. Such omissions and oversights are rampant in the episode "Abductions" in which small, subcutaneous foreign bodies, assumed to be of alien origin, are extracted from two individuals and analyzed. No one asked how objects embedded in solid tissue could evade surgical extraction or explained how such elusive things could ever be removed in the first place. Further, no one questioned how these tiny "devices" were powered or wondered what structures relayed sensory information and conferred motility or the putative radio broadcast capacity. Viewers inclined to simply trust that this program conforms to the generally high standards of quality and reliability of the History Channel may miss numerous and glaring deficiencies.

UFO enthusiasts are often quick to maintain that debunkers and doubters haven't disproved anything. Many scientists believe that the universe harbors intelligent life somewhere in addition to Earth. Judging by the sharply contrasting evidentiary and logical standards and in the absence of some future transformative event, it may be nearly impossible to square believer opinions and aspirations with the tenets of fact-based experimental science. We may all live on the same planet, but some of us seem to inhabit different worlds. □

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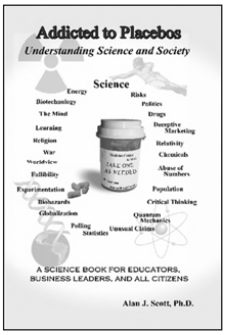
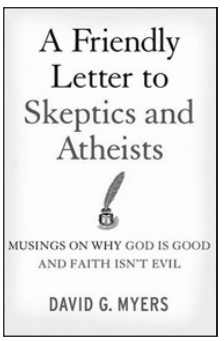
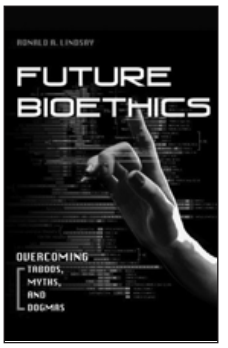
ADDICTED TO PLACEBOS: Understanding Science and Society. Alan J. Scott. Lulu, Inc. www.lulu.com/scotta. 2008. 513 pp. Paperback, $27, online download $12.07. Despite its title, this book doesn't have much to do with medicine and health. It is really a science book for educators, business leaders, and all citizens, doubling as a physical science textbook with emphasis on science and society. Scott, a physicist and educator (University of Wisconsin-Stout), sees science as a mode to elevate our existence and enrich our minds. He intends the book to improve the general state of science literacy among students and the public. Its express purpose is "improving the critical thinking and science competencies of citizens and students." Part I is devoted to defining science; Part II to learning and critical thinking; Part III to science and society (topics include science and consumer-products marketing; science, religion, and psychology; risk and fear; the scientific frontiers of biotechnology, relativity, and quantum mechanics; and seeking the betterment of society). Throughout, Scott, following the muse of Carl Sagan, uses scientific evaluation of unusual claims as a "valuable, exciting, and motivating teaching technique." Through twenty-three "student challenges" and other tools, he helps readers distinguish between science and nonscience or pseudoscience.


Addicted to Placebos
Understanding Science and Society
Science
A SCIENCE BOOK FOR EDUCATORS, BUSINESS LEADERS, AND ALL CITIZENS
Alan J. Scott, Ph.D.

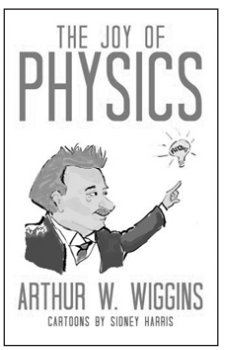
A FRIENDLY LETTER TO SKEPTICS AND ATHEISTS: Musings on Why God is Good and Faith Isn't Evil. David G. Myers. Jossey-Bass/Wiley, San Francisco, California, 2008. 152 pp. Hardcover, $16.95. A psychologist and noted writer for students and the public on psychological science responds to some recent atheist "manifestos." As a scientist, open-minded skeptic (who cheers on challenges to irrationalism), and a man of faith, he seeks to transcend the skeptic/believer divide by suggesting how faith can be reasonable, science-affirming, and humane. None of it, he says, need involve magical ideas about prayer, gay bashing, or a division of body and soul. His Friendly Letter to Skeptics and Atheists seeks to help both secular and religious readers appreciate their common ground.



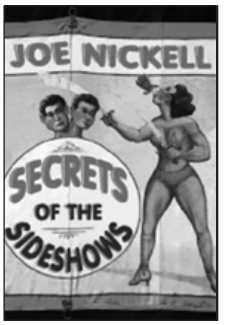
FUTURE BIOETHICS: Overcoming Taboos, Myths, and Dogmas. Ronald A. Lindsay. Prometheus Books, Amherst, New York, 2008. 340 pp. Hardcover, $28.95. Legalizing assistance to dying. Pharmacists asserting a right to refuse to dispense contraception. Genetically engineered foods. Technologies to enhance human performance. These and other topics raise tendentious ethical issues. Ronald Lindsay explores them in a way that seeks to find common ground between scholarly and popular books and between policy scholars and the general public, showing the reasoning behind his arguments and bringing the reader along with him. Lindsay, who has a PhD in bioethics as well as a law degree, has been the Center for Inquiry's director of research and legal affairs and is its newly named chief executive officer. He finds that various taboos, myths, and dogmas stemming from adherence to moral beliefs developed in earlier times impede progress in developing sound public policy during a time of revolutionary transformation in biomedical technology. He shows how bioethical controversies can be resolved by using commonly accepted moral principles, ensuring consistency in our views, and understanding the purposes and objectives of our policies.



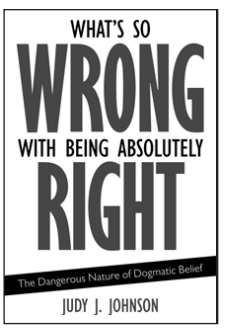
THE JOY OF PHYSICS. Arthur W. Wiggins. Cartoons by Sidney Harris. Prometheus Books, Amherst, New York, 2008. 390 pp. (illustrations). Hardcover, $16.95. A physics professor and popular-science writer shares his love of physics in a way meant to draw readers in and feel the excitement of learning. Filled with examples and simple demonstrations and experiments you can do yourself, it's a hands-on approach to the fun of discovery. Here is a route not only to understanding physics—which, after all, deals with the biggest cosmic questions such as the workings of the entire universe—but to doing physics. Mini-biographies, activties, abundant illustrations, and some cartoons by science's wittiest and most perceptive cartoonist, Sidney Harris, lighten the learning.



SECRETS OF THE SIDESHOWS. Joe Nickell. University Press of Kentucky, Lexington, 2008. 401 pp. (illustrations). Paper, $19.95. CSI's indefatigable investigator and senior research fellow Joe Nickell has always been attracted "to the odd and curious." He even worked one year as a magic pitchman at a carnival, learning the tricks of the carnival trade, and worked over the next three years as a magician at the Houdini Magical Hall of Fame in Niagara Falls, Canada. Since then he has spent periods of his life investigating carnivals, especially sideshows. This is his inside look at the specific methods, the carny talk, and the showmen and human oddities that make sideshows so fascinating. Topics include anatomical wonders, created oddities, working acts (fire-eaters, sword swallowers, snake charmers, etc.), illusions, animal shows, and curios. This may be one of Nickell's most entertaining books. He treats his subjects with sympathy and humanity but calls a fake a fake while still savoring sideshows' mystery and magic. Contains more than 150 photos (many by Nickell) and illustrations, many from his archives.



WHAT'S SO WRONG WITH BEING ABSOLUTELY RIGHT: The Dangerous Nature of Dogmatic Belief. Judy J. Johnson. Prometheus Books, Amherst, New York, 2008. 430 pp. Paper, $21.95. A Canadian psychology professor explores the psychological channels of dogmatism. Disrupting the best intentions of science, politics, and religion, dogmatism (a closed-minded approach to knowledge and a rigid, unjustified certainty about beliefs) is a profoundly influential social force. Despite scientific advances in cognitive psychology, no scholarly theory has emerged to explain dogmatic ideological extremism—especially in politics, religion, business, and academia, where the effects are so damaging. This book attempts to fill that gap. Johnson describes twelve characteristics of dogmatism and proposes that they derive from key deficiencies in childhood and adolescence. The model of dogmatism she develops is based on informed assumptions, she says, some of which have been tested in the literature, and some which have not.



—Kendrick Frazier

FOLLOW-UP

Cyberonics Responds to Barglow's 'Corporate Self-Interest and Vagus Nerve Stimulation for Depression'

GEORGE PARKER

I was surprised and disappointed when I read Peter Barglow's article, "Corporate Self Interest and Vagus Nerve Stimulation for Depression," (SI, September/October 2008). You tout your publication as telling "what the scientific community knows about claims of the paranormal, as opposed to the sensationalism often presented by the press, television, and movies." Yet by publishing this article, you have given Dr. Barglow a forum to level a sensational attack on colleagues with whom he simply disagrees professionally. Furthermore, you have allowed Dr. Barglow a means to unfairly denigrate Cyberonics, a small medical-device company devoted to improving the lives of people touched by epilepsy, depression, and other chronic disorders that may prove treatable with VNS Therapy.

The article includes a number of factual errors and is based largely on Dr. Barglow's opinions and outright conjecture—hardly what I would expect from a publication that is committed to science and reason. A full rebuttal to his errors, opinions, and conclusory mistakes is beyond the scope of this message, but I hope some examples will make my point.

Early on, Dr. Barglow questions the underlying logic that VNS Therapy may be effective in treating depression. If I read the second paragraph on page thirty-seven correctly, his reasoning appears to flow as follows: ECT treats depression by inducing a seizure; VNS Therapy (also FDA-approved as a treatment to prevent seizures in epileptics) prevents seizures; therefore, VNS Therapy is not an effective depression treatment (or as Dr. Barglow states, "the logic of using [VNS] for depression [is] shaky"). This foundation paragraph alone is patently incorrect and goes against the weight of current medical thinking.

The rationale for studying VNS Therapy in treatment-resistant depression was based on several different observations. Direct evidence supporting a role for VNS Therapy in depression came from early observations of mood improvement in patients with epilepsy who participated in early VNS studies. Following these initial observations, patients with epilepsy were evaluated prospectively with standard depression symptom severity rating scales, which revealed that VNS Therapy was associated with statistically significant improvements in mood that were not related to reductions in seizure frequency (Elger 2000, Harden 2000). In addition, several different lines of indirect evidence prompted further study of VNS Therapy in depression. For example, PET imaging during VNS Therapy in patients with epilepsy demonstrated reductions in the metabolic activity of the amygdala, hippocampus, and cingulate gyrus (Henry 1998), structures involved in regulating mood. These brain regions also are implicated during PET imaging in patients with depression who are being treated with antidepressants (Drevets 2002, Mayberg 2000, Nobler 2001). Hippocampal involvement during VNS Therapy also is consistent with the findings of studies showing increased expression of brain-derived neurotrophic factor (BDNF) in animal models of depression (Nibuya 1995, Follesa 2007).

The documented efficacy of anti-seizure medicines and anticonvulsants, such as carbamazepine, lamotrigine, valproate, and perhaps others, as mood stabilizers and/or antidepressants in bipolar disorder (Yatham 2004) and the anticonvulsant properties of ECT (Kellinghaus 2003, Lisanby 2001) are consistent with the hypothesis that there is a rationale for considering VNS Therapy as an antidepressant treatment. Other findings that suggest a role for VNS Therapy in depression include the effect of VNS on brain regions associated with the norepinephrine (Krahl 2998, Naritoku 1995) and serotonin neural systems (Ben-Menachem 1995, Door-Debonnel 2006). In addition, VNS has been shown to be as effective as ECT or desipramine in a well established animal model of depression, the forced swim test (Krahl 2004).

Dr. Barglow states repeatedly that there is no evidence that VNS is effective for treatment-resistant depression and purports to give an accurate recount of the clinical studies on which the FDA approval is based. The following peer-reviewed papers describe the clinical studies, including the acute phase of the pivotal study that did not reach statistical significance, and offer support for the use of VNS Therapy in treating TRD:

1. Rush, A.J., L.B. Marangell, H.A. Sackeim, et al. 2005. Vagus nerve stimulation for treatment-resistant depression: A randomized, controlled acute phase trial. Biological Psychiatry 58: 347–354.

2. Rush, A.J., H.A. Sackeim, L.B. Marangell, et al. 2005. Effects of twelve months of vagus nerve stimulation in treatment-resistant depression: A naturalistic study. Biological Psychiatry 58: 355–363.

3. George, M.S., A.J. Rush, L.B. Marangell, et al. 2005. A one-year comparison of vagus nerve stimulation with treatment as usual for treatment-resistant depression. Biological Psychiatry 58: 364–373.

4. Sackeim, H.A., S.K. Brannan, A.J. Rush, et al. 2007. Durability of antidepressant response to vagus nerve stimulation. International Journal of Neuropsychopharmacology Feb 9; 1–10.

These papers demonstrate that Dr. Barglow is factually incorrect when he says there is no evidence. What appears true is that he discounts any clinical evidence not based on a double-blind randomized control. While he may not be alone in that view, the article completely fails to present an unbiased consideration of the evidence on both sides of the question.

In seeking to assail the decision by Dr. Daniel Schultz (director, Center for Devices and Radiological Health, FDA) to approve Cyberonics' VNS Therapy System as a long-term adjunctive treatment for chronic or recurrent treatment-resistant depression, he describes the guilty plea by Dr. Lester Crawford (commissioner of the FDA) to a misdemeanor charge and then infers that Dr. Schultz may be dishonest because he was appointed by a political appointee who "cheats." His reasoning is specious. He presents no evidence that Dr. Schultz made his decision based on anything other than science.

To be sure, current FDA regulations governing the approval of medical devices do not require randomized controlled trials. In fact, there are a number of valid concerns and arguments against this type of trial design (requires a sham surgery, etc.). There is no doubt that reasonable minds can differ on the robustness and validity of the trials that led to the approval of VNS Therapy; however, to suggest that Dr. Schultz made his decision based on anything other than the evidence available to him is inaccurate at best and slanderous at worse. It also bears mention that while Dr. Schultz overturned the "not approvable" decision after the submission of additional evidence, prior to that, a specially chosen FDA advisory panel voted five to two recommending VNS Therapy's approval. In assailing Dr. Schultz, Dr. Barglow carelessly—or purposefully—omits reference to this fact.

In another line of attack that has little or no bearing on science or scientific inquiry, Dr. Barglow repeatedly denigrates his psychiatric colleagues for their presumed association with Cyberonics at some point in their careers. Regarding Dr. A.J. Gelenberg, he states, "It seems doubtful that Gelenberg would have publicized this trivial research had he not also been on the payroll of Cyberonics." Dr. Gelenberg is not now and has never been "on the payroll" of Cyberonics in any capacity. He received a fair market value honorarium for programs in which he served as a faculty member—hardly "on the payroll."

Dr. Barglow attacks Cyberonics's support of the American Psychiatric Association through the provision of unrestricted grants. The fact is that many organizations such as the APA are supported in whole or in large part by industry. In addition to Cyberonics, the APA also accepted grants and support for its 2006 annual meeting from Pfizer and a host of other PhRMA companies. I'm sure the complete facts would show that the amount of support provided from Cyberonics to the APA is significantly below that of most other companies. As a practical matter, Cyberonics is not now and never has been in a financial position that would allow the type of industry support that anyone would consider excessive. Industry support for educational meetings such as APA's annual meeting is a reality of the current environment, and the APA has established rigorous guidelines to ensure that industry support is appropriate and transparent. To suggest that Cyberonics's support of the APA was related to Dr. Ruiz's (APA president) support of VNS Therapy reimbursement by Medicare is, once again, inaccurate at best and slanderous at worse.

In the best example yet of Barglow's attempt to smear Cyberonics, he implies that Cyberonics's efforts to garner support for VNS Therapy during the CMS open comment period was somehow inappropriate and tainted. The reality is that Cyberonics simply availed itself of the right to participate in the administrative process—a right guaranteed by the Administrative Procedure Act and, ultimately, the U.S. Constitution. That Cyberonics sought comments from VNS Therapy advocates in no way diminishes the overwhelming support that was evident during the public comment period.

At the end of the day, Cyberonics engaged in the process that was required of all companies. They sought and received FDA approval for a device that the FDA, in its approval letter, noted, "[FDA] believes [Cyberonics] has provided reasonable assurances of safety and efficacy based on valid scientific evidence as required by statute and regulation . . . . Data were systematically collected and analyzed which showed significant improvement from baseline over one and two years for a definable subset of the target population, and comparative data against a reasonably matched control which also sustained improvement over time." As with everything else in Barglow's piece, to suggest that there is no evidence to support VNS Therapy's use in depression is completely unfounded.

For an organization that claims to "promote science and scientific inquiry, critical thinking, science education, and the use of reason in examining important

Response to Cyberonics Letter of Criticism

PETER BARGLOW

Thank you for the opportunity to respond to the criticism of my article by George Parker of Cyberonics. Parker's evaluation is comprehensive and shows familiarity with the relevant psychiatric literature.

At the outset I agree that one of the article's section subhead's claims that there is "No Evidence VNS Works" may be an exaggeration. This sub-title summary should have included a modifier such as "scientific," "significant," or "convincing." My conclusion is better represented by the May 2007 Medicare ruling denying reimbursement for the surgery implanting the device. The ruling states that research "provides little evidence that a patient will experience a health benefit as a direct result of VNS therapy."

I accept also Parker's questioning of my logic that if ECT successfully treats severe depression by producing a seizure, it is unlikely that VNS, which prevents seizures in epilepsy, would ameliorate refractory depression. In retrospect, I should not have indulged in such a speculative comparison.

But let me evaluate some of the data that Parker provides to support the effectiveness of Vagus Nerve Stimulation Therapy.

He writes that "direct evidence supporting a role for VNS Therapy in depression" derives from observations of improved mood in patients with epilepsy treated with VNS. But is this evidence "direct"? Patients with fewer seizures would be expected to feel better or less depressed, since physical well-being is in itself a kind of antidepressant. And controlled trials of interventions for the treatment of depression gener-

ally show roughly a 30 percent placebo response rate. Thus, one would expect some patients to improve with VNS, as they would with any intervention solely because of the placebo response. Despite great effort, Cyberonics has not been able to demonstrate scientifically that VNS is any more effective than a placebo.[1]

Parker offers the conclusions of four peer-reviewed articles to support VNS's efficacy. The first of these, Rush, Marangell, et al., concludes, "This study did not yield definitive evidence of short-term efficacy for adjunctive VNS in treatment-resistant depression." The second study, Rush, Sackeim, et al., used VNS as an "adjunct to other antidepressant treatments" and lacks a control or comparison group. The third, George, Rush, et al., used a "treatment as usual" patient population intended originally to study health care costs, not VNS. "Treatment as usual" meant antidepressant and antipsychotic medication, psychotherapy, and even ECT. So subjects were enrolled in a nonrandomized trial that can at best be considered exploratory and inconclusive to judge effects when VNS was added to the intervention protocol. The fourth paper, Sackheim, Brannan, et al., with a small sample of seventy-two patients, did not evaluate VNS efficacy but followed up on subjects that had improved with VNS along with sundry other treatments. The conclusion that patients who improve with any treatment method maintain that progress is compatible with much intervention research but has little relevance to the possible benefit of VNS.

Parker mentions that there is "indirect evidence" for the therapeutic effect of VNS in a number of competent research studies that show the metabolic activity of various anatomical brain structures, the effective use of mood stabilizers in bipolar disorder (most of them, I must note, are not effective antidepressants), assays of brain neurotransmitters possibly associated with the use of VNS, and extrapolation from an animal model of depression. Such research is important to generate hypotheses for why VNS might work but are not relevant to the question of whether the method does indeed work to ameliorate serious depression.

I need not apologize for my preference for double-blind, randomized control studies over etiological hypothesis and letters of support for the benefit of this method from many patients and psychiatrists. The former research method can be used to study the efficacy of VNS, as was appropriately done in the first study Parker cited above (Rush, Marangell, et al.). I recognize that obtaining experimental subjects is difficult because of the expense ($25,000) of the procedure and the possibility of many surgical complications from the implantation of the device. But years of failure to obtain statistically significant findings during years of Cyberonics's sponsored research at many U.S. universities appears to be the major obstacle to enrolling deeply depressed patients in further research efforts.

I find little data to justify Parker's remarks that I level "sensational attacks on colleagues," "denigrate" them, and "attempt to smear Cyberonics." During the week following the writing of his letter, The New York Times had a front page article about Dr. Nemeroff, "Top Psychiatrist Didn't Report Drug Makers' Pay, Files Show," (the company is GlaxcoSmithKline) that alludes to his financial ties to Cyberonics, "the maker of a controversial device." The device is identified as the Cyberonics Vagus Nerve Stimulator. Nemeroff's and Schatzberg's ethical conflicts of interest have been described often in the national media.

Parker considered it denigrating that I described Dr. Gelenberg as being "on the payroll" of Cyberonics, when according to him, he only received a single honorarium from his company. In the monthly publication, Biological Therapies in Psychiatry that Gelenberg edits, he identifies himself as a consultant for Cyberonics and ten other companies (page 4). If he is not financially compensated for this role, I offer my apologies to both gentlemen.

My description of Dr. Schultz's role at the FDA in 1997 in approving VNS—he overruled the opposition of twenty internal scientists—is taken from a 2006 Senate Finance Committee report.[2] In response to my questioning the prejudicial nature of the financial support provided by Cyberonics to the American Psychiatric Association, whose president supported VNS, Parker asserts that such an administrative process characterizes many transactions between pharmaceutical and medical-device maker corporations and psychiatric or medical associations.

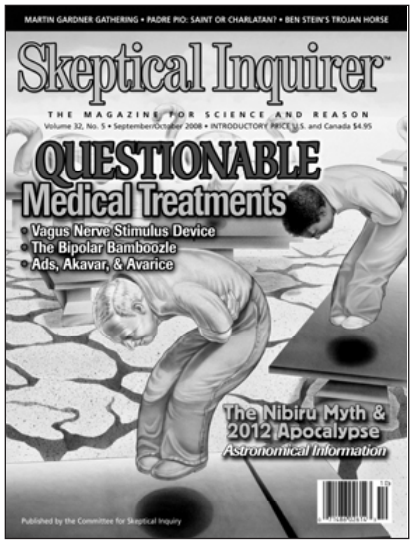
I need not apologize for my preference for double-blind, randomized control studies over etiological hypothesis and letters of support for the benefit of this method from many patients and psychiatrists.

Alas, this last claim is all too true. But currently there is much national opposition to such financial relationships because they can jeopardize scientific and medical integrity. This concern has been concretized by a current investigation of the American Psychiatric Association by Senator Charles Grassley, a senior U.S. Senator who also questions the awarding of continuing medical education credits to participants of drug-company marketing efforts disguised as educational symposia and informational lectures. Hard evidence, not money, should determine research conclusions about the effectiveness for any therapeutic intervention. □

Notes

1. Personal communication. 2008. Nicholas Rosenlicht, MD, clinical professor department of psychiatry, University of California, San Francisco School of Medicine and director of the Mood Disorders Program, VAMC San Francisco October 6.

2. Review of the FDA's approval pro-


MARTIN GARDNER GATHERING • PADRE PIO: SAINT OR CHARLATAN? • BEN STEIN'S TROJAN HORSE
Skeptical Inquirer
THE MAGAZINE FOR SCIENCE AND REASON
QUESTIONABLE
Medical Treatments
Vagus Nerve Stimulus Device
The Bipolar Bamboozle
Ads, Akavar, & Avarice
The Nibiru Myth & 2012 Apocalypse
Astronomical Information
Published by the Committee for Skeptical Inquiry

Vagus Nerve Stimulation (VNS) Device

Regarding Peter Barglow's "Corporate Self Interest and Vagus Nerve Stimulation" (SI, September/October 2008): I had a VNS put in two years ago this month. It turned out to be such a waste of time and money. I wish I could have it taken out.

I've been in the hospital five times for depression since it was installed. I was told the VNS would be so much better than ECT (electroconvulsive therapy), with fewer side effects. I've had a sore throat for two years. I lose my voice often, and the left side of my neck is almost always red. The doctors won't turn it down anymore because they say it won't work if they do. I wish they would turn it off or take it out. My new doctor doesn't even deal with VNS, and I don't blame him.

I want it out!

Shawn Laughlin
Kansas City, Missouri

Having just read Peter Barglow's article on vagus nerve stimulation, I was interested that a Policy Alert from the American Association for the Advancement of Science (October 23, 2008) had an item about Charles Nemroff's problems at Emory University. ("Emory Faces Conflict-of-Interest Issue. Following the investigation into conflict-of-interest allegations against psychiatrist Charles Nemeroff (reported in the October 6 Policy Alert), NIH has frozen a $9.3-million grant to Nemeroff's employer, Emory University. Emory announced that it has created a new office to oversee enforcement of its conflict-of-interest policies.")

This led to an Internet search on Nemeroff, which turned up this interesting page: "Charles Nemeroff News Stories" (www.ajc.com/living/webservice_client/webservice_clientClass/inform/landing.jsp?subjectName=Charles+Nemeroff&informSiteId=6801&cxntlid=inform_arts), with roughly twenty articles about the affair.

William B. Melchior, Jr.
Little Rock, Arkansas

An extended exchange between Cyberonics executive George Parker and clinical psychiatry professor Peter Barglow regarding Barglow's SI article "Corporate Self Interest and Vagus Nerve Stimulation" appears in the Follow-Up section of this issue, pages 60–62.

—EDITOR

Bipolar Bamboozle?

As a practicing psychiatrist for about forty years, I was very interested in the article "The Bipolar Bamboozle" (SI, September/October 2008). The authors have done a worthy service in pointing out the changes that have occurred in the diagnosis and management of this sometimes devastating disorder. I have been concerned about the number of people who appear at the clinic where I am employed who have carefully diagnosed themselves with this disorder as a result of reading books and articles by prominent people who have "outed" themselves as sufferers of bipolar disorder. When I was in training, this was thought to be an uncommon illness. Diagnosis in psychiatry is complicated by the fact that there is no objective laboratory, imaging, or other test that allows for the definitive diagnosis of any psychiatric disorder.

It is appalling that the medication manufacturers are permitted to advertise their products to the general public ("Ask your doctor if _____ is right for you.") It is also appalling that physicians are treated to travel and meals and other perks for promoting their particular variety of snake oil. On the other hand, my clinic is dependent on drug-company patient assistance programs to supply some of the much-needed "powerful antipsychotic medications" of which your authors speak so disparagingly.

The statements in the article about the lack of significant changes in American culture, diet, and mores are simply untrue. One need only look around to see them. The paper by Harrow, Grossman, Jobe, and Herbener is cited mistakenly on two counts. It has nothing to do with bipolar disorder but with schizophrenia. The "recovery" mentioned in that paper is defined by the authors as being "episodic recovery" and not "lifetime recovery" as your authors suggest. This kind of episodic recovery in schizophrenia has been documented in psychiatric literature for many years.

As for the use of "powerful antipsychotic medication," I hope that if I should develop one of these devastating psychiatric illnesses someone would treat me with a "powerful antipsychotic medication."

James E. Huddleston, MD
Psychiatrist
Midland, Texas

The article "The Bipolar Bamboozle" includes several inaccuracies. The concept of a bipolar spectrum is not new but has been repeatedly described since Kraepelin, the father of psychiatric nosology, in the early 1900s. Spectrum concepts in psychopathology have also been described for autism/pervasive developmental disorder, obsessive compulsive disorder, and other conditions. That some overdiagnose bipolar spectrum does not invalidate its existence, as numerous epidemiologic and genetic studies have shown. Subsyndromal forms of illnesses are described in several areas of medicine and not only in psychiatry.

Some (but not all) anticonvulsants have shown for decades to have antimanic properties. The use of carbamazepine, for example, was introduced by Japanese researchers in the 1960s. The subset of anticonvulsants that show antimanic properties share with lithium some intracellular targets, like inhibition of the enzyme GSK. It is therefore likely that their mood properties occur through a mechanism of action different from their antiepileptic mechanism, which explains why not all anticonvulsants work in mania and why lithium (not an anticonvulsant) does.

The author's selective review of the literature is disconcerting. To cite a study that reviews discharge status from one hundred years ago (when patients could be hospitalized for years until fully recovered and diagnoses were much more imprecise) with today's ultrashort, crisis-management-only hospitalizations is unwise. To imply then that mood stabilizers do not work negates decades of worldwide, double-blind, placebo-controlled studies showing how these drugs can positively affect the lives of patients.

To suggest that "schizophrenia patients are eight times more likely to recover if they are not on medications" is dangerous and, again, contrary to decades of very carefully replicated research. Any serious mental health professional who treats schizophrenia would be dismayed to read such a statement.

Luis A. Giuffra, MD, PhD

Assistant professor of clinical psychiatry
Washington University School of Medicine
St. Louis, Missouri

A mainstream women's magazine recently told about how a pig farmer had cured his sister's Bipolar Affective Disorder (manic-depression) by giving her some of the weight-gain supplement he'd been giving his piggies. Logically, scientifically, and epistemologically speaking, the article by Stephen Ray Flora and Sarah Elizabeth Bobby is no better.

"Bipolar Bamboozle" looks like a crude and cruel attempt to flog Flora's Taking America off Drugs: Why Behavioral Therapy is More Effective for Treating ADHD, OCD, Depression, and Other Psychological Problems.

Clinical experience teaches that many of the readmissions for bipolar disorder (or schizophrenia, for that matter) result from patients deciding (on their own or with the advice of an "expert") that they don't need their meds. It's so tempting. Some 15 percent of people affected by bipolar disorder commit suicide. And too often, we read about other terrible results.

Lithium, originally investigated for its (ultimately hazardous) value as a salt substitute, proved to be the first effective medication for treating bipolar disorder. Semantic quibbling about "kindling," "mood-stabilizers," "antiseizure medications," and "anticonvulsants" may muddy the water, but there is ample empirical evidence that some, such as Abilify, Seroquel, and Lamotrigene, are as effective as lithium at treating and preventing the recurrence of manic breakdown but reduce the onerous side effects (including kidney disorders, weight gain, reduced libido, and shaking hands). No effective medication is without side effects. Any drug that safely reduces mania, does not induce depression, and reduces side-effects—whatever its original use—must be welcomed.

Observing the dramatic increase in bipolar diagnoses in the last decade, Flora and Bobby claim that "nothing overtly changed in American culture. . . ." Except, perhaps, the televised mass-marketing of prescription medicines! To attempt to compare admission rates historically is questionable: conditions in psychiatric institutions changed a lot between the 1890s and the 1990s.

It would be more productive to compare the increase in anti-bipolar medications as used in countries where direct-to-consumer drugs are allowed (the U.S. and New Zealand) with their use in other countries where the practice is illegal. If "Bipolar Bamboozle" validates a thesis, it is that permitting the aggressive televised marketing campaigns by psychopharmaceutical companies in the Untied States has increased the prescription of psychopharmaceuticals. Duh!

R.F. Madrid
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Stephen Flora replies:

"The Bipolar Bamboozle" never asserted the nonexistence of bipolar disorder but argued that as a result of psychiatric profit motives and drug companies' aggressive marketing, an alarming number of people with normal life problems and emotions are now glibly labeled with what was once a very rare and serious problem.

More recent evidence supports this conclusion even as current television solicitations proclaim "hundreds of thousands of patients have been prescribed Abilify. Ask your doctor." From 1994 to 2003, the U.S. has had a forty-fold increase in the rates of bipolar in people nineteen and younger, from 25 to 1,000 per 100,000, but from 2000 to 2005 Germany has only seen an increase of 1.13 to 1.78 per 100,000, an increase of less than two fold, and an absolute rate more than 500 times less than in the U.S. (Holtmann, Bolte, and Poustka, 2008)! In the U.S., 6.7 percent of children are on some type of psychotropic medication, a rate double that of the Netherlands and triple that of Germany. Atypical antipsychotic medications represented only 5 percent of antipsychotics in Germany but 66 percent in the U.S., and the rates of concomitant drug use in the U.S. are triple that of Germany.

The reasons for these differences are "differences in policies regarding direct to consumer drug advertising, government regulatory restrictions, reimbursement policies, classification systems, and cultural beliefs regarding the role [of] medication for emotional and behavioral treatment" (Zito et al., 2008).

In other words, instead of working on life's challenges and difficulties, scores of consumers and parents in the U.S. have been bamboozled into buying into labels as pseudo-explanations and into using dangerous drugs as quick fixes for life's difficulties by drug companies seeking greater profits and psychiatrists seeking greater reimbursement. It is the U.S., but not Germany or the Netherlands, that permits pharmaceutical direct-to-consumer advertising.

It is not a "suggestion" of ours that rates of recovery of schizophrenia are eight times more likely without medication than with it, it is a research finding of Harrow and Jobe (2007). Science teaches us that "clinical experience" (R.F. Madrid's letter) is a poor teacher indeed. Quacks, chiropractic, and other new-age frauds rely not on science but on the teachings of "clinical experience" to make their claims. It is disheartening that practicing psychiatrists must take this fall-back "privileged knowledge" position to defend their practice.

Other than living in a country filled with millions of inappropriately labeled and unnecessarily drugged citizens, I have nothing to gain or lose from the debate on the overdiagnosis and consequent excessive drugging of people labeled bipolar—unlike the psychiatrists criticizing the article. Nothing in the letters invalidates the arguments in "The Bipolar Bamboozle."

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The Nibiru 'Rogue Planet' End-of-World Myth

I was very excited when I saw the article "The Myth of Nibiru and the End of the World in 2012" mentioned on the cover of the September/October 2008 SKEPTICAL INQUIRER. Alas, the expectation was not borne out in the reading because author David Morrison never discussed the meaning of the dots on the cylinder seal VA 243 or why the big star in the center is not the Sun, and he misstated the origin of the interest in Nibiru, which goes back to 1976 with the publication of The 12th Planet by Zecharia Sitchin.

I cannot imagine that NASA's "Ask an Astrobiologist" Web page would get hundreds of questions, many of which you quote, and none of them would mention Sitchin and his books. The people who are impressed by this Nibiru nonsense, who presumably are the target audience for your article, all know about

Sitchin.

An Assyriologist contact of mine sent the following: "I do not understand how so much disinformation can create so much heat. There is no such thing as nibiru/nebiru in Sumerian mythology. The word is Babylonian and appears only in "Enuma Elish," which is not Sumerian, but a complex Babylonian poem that exalts Marduk, probably written around 1100 BCE."

Leroy Ellenberger
c.leroy@rocketmail.com

Why do you ignore the actual sources of the Nibiru myth? The 2012 mythology about "the sun in the center of the Milky Way" comes from a misinterpretation of the "galactic alignment" theories of John Major Jenkins. The myth of Nibiru, like other religious myths, is based on a set of specific narratives that are not readily dismissed by true believers because (unlike science) they carry embedded messages about morality.

Having spent a lot of time arguing points of pseudoscience over the years, I think it is important to avoid statements of "no evidence whatever" in favor of "insufficient evidence," "flawed evidence," "bad evidence," or even "hoaxed evidence." The general public considers all kinds of things to be evidence, including divine revelation, myths, dreams, visions, and so forth.

How does one have a reasoned and respectful dialogue? By treating every hypothesis as worthy of consideration and politely dismissing the ones that are scientifically untestable as expeditiously as possible.

I have another hypothesis about the 2012 hype: the effect of "stealth marketing" for next summer's sci-fi blockbuster movie 2012 (www.youtube.com/watch?v=gVi_2lHBVh). If I were bankrolling this film, I'd spread the meme. Wouldn't you?

John Hoopes
john@hoopes.com

David Morrison replies:

Three of the letters address a part of the Nibiru story that I omitted, namely the mythological basis for the current Nibiru interest. This might be an interesting subject, but I am not competent to write about it. My focus was on the letters that were sent to NASA's "Ask an Astrobiologist webpage"—letters that still (on 10/08/08) arrive at a rate of ten to fifteen per week.

Ellenberger wrote that he couldn't imagine that the questions to "Ask an Astrobiologist" would not mention Zecharia Sitchin. However, in nearly 500 Nibiru questions, Sitchin's name has come up only three or four times and never as a central issue. The people who write to NASA are concerned about the perceived threat to Earth from Nibiru (or Planet X or whatever they are calling it), not the details of Mesopotamian myth. Nor do I feel obliged to address these misinterpretations of Sumerian mythology. I once wrote with respect to pseudoscience that if you are served a meal of spoiled food, you require only a couple of bites to recognize the problem and are not required to eat it all. Similarly, when confronting spoiled ideas like those about the threat from Nibiru and galactic alignment, I don't need to know about the cook who spoiled the meal. I will leave the mythology to other, better-informed authors.

The letters from Ellenberger, Hoopes, and Endicott note that Nibiru either does not exist in Mesopotamian mythology or is mentioned only in later Babylonian myth as an alternate name for Marduk. In contrast, many of the people who write to me not only think the Sumerians discovered Nibiru (the planet), but also Uranus, Neptune, and Pluto. Some also claim that the Sumerians had images of these planets as good as those obtained by Voyager, and thus that they must have had astronomical technology better even than the Hubble Space Telescope. Others assert that the Mayans knew all this too, or they would not have designed their calendar to end in December 2012. I have been surprised to discover that this faith in our ancestors' superior scientific wisdom is still with us today.

My correspondents are fearful of an impending disaster. Their fears are based on Internet claims that Nibiru has been discovered and is being tracked by NASA or that it is visible from the southern hemisphere with the unaided eye or that there is a South Polar Telescope constructed to watch Nibiru or that the Norwegian government has built underground shelters for millions or that the Earth's pole is already shifting, etc., etc. All these claims are testable, and we know they are untrue. This is not a matter of misinterpretation but of lies. I am very frustrated when people suggest that NASA should prove that Nibiru does not exist. Aside from me, I don't think NASA even knows about this Nibiru hoax. The burden of proof must lie with those who make these claims.

I am fascinated by Hoopes's reference to the coming Hollywood disaster film called 2012. I suspect that he is correct that publicity for this film will keep the Nibiru issue alive through 2009.

Brain Science Cautionaries

Kudos to Robert Epstein ("The Truth About Brain Science," SI, September/October 2008) for pointing out that almost all studies of brain function are correlational and do not warrant making statements about the brain causing overt or covert behaviors. He also mentions that environmental events change brain activity, an important point because the nonexpert could easily conclude, from what some brain experts assert, that the brain operates in a vacuum.

Peter Lamal
Charlotte, North Carolina

Robert Epstein's column rightly warns us not to draw unwarranted conclusions from modern brain imaging studies. That temptation was rejected as "The New Phrenology" in a book of that title by William Uttal.

Unfortunately, Epstein proceeds to do exactly what he criticizes others for doing: he draws unwarranted conclusions from MRI studies of brain size. He tells us MRI studies have shown that the seventy-year-old brain has shrunk to the size it was at age three. He characterizes this as "a remarkable advance," and he claims that the pattern of shrinkage "closely matches changes in cognitive ability across the lifespan, especially changes in intelligence and memory." This simply isn't true.

MRI measurement of brain size in vivo is a clever technological accomplishment, but it hasn't taught us anything we didn't already know about changes in brain size over the lifespan. We already knew from autopsy studies that the average brain weight at age six is 1180 grams; it peaks at 1450 grams by age twenty-five; then it declines by two grams per year, so at age eighty it would reach an average of 1340 grams. After age eighty it declines by five grams per year, so at age one hundred it would have declined to 1240 grams. This is still greater than its weight at age six, which is of course greater than its weight at age three. Interestingly, the shrinkage is less in women; we don't know what that means.

MRI scans show volume, which may not correlate with the actual mass of brain tissue due to variations in extracellular and intracellular fluid; and neither weight nor volume correlates well with the number of neurons and synapses. Brain size only correlates very roughly with cognitive ability: some small brains are smart and some large brains are stupid. Significant brain atrophy can occur with aging without any detectable cognitive deficits. Atrophy in localized areas is more important

than overall brain size.

Yes, it's true that if you want to know the size of a patient's brain, you no longer need to wait for an autopsy. But what good does it do to know the size of a patient's brain? Unless the measurement can be used to make a diagnosis and unless the diagnosis leads to treatment that can improve the patient's outcome, knowing brain size really isn't important. If you want to know if someone has cognitive impairment, you test for that directly; you don't look at the size of his brain.

I can't even imagine where Epstein could have gotten the idea that the pattern of shrinkage "closely matches changes in cognitive ability across the lifespan." It is ludicrous to suggest that the cognitive ability of a seventy-year-old is comparable to the cognitive ability of a three-year-old.

Harriet A. Hall, MD
Pulyallup, Washington

Skeptically speaking, Massimo Pigliucci ("The Brain on Justice," September/October 2008) might do well to read the column by Robert Epstein ("The Truth about Brain Science") in the same issue.

There is a huge leap of faith from the observation (via fMRI imaging) that blood flow increases (and by inference that brain activity increases) in certain areas of the brain while we are doing certain things as indicated by verbal reports and the conclusion that we have such entities as "rational brains" and "emotional circuitry."

Neurophysiology is coming up with many interesting findings, but correlating localized (somewhat; the boundaries are actually rather hazy) activity with behavior is a long way from providing a mechanism for it. The brain is an integrated system, and while it is not surprising that particular tasks are correlated with relative increases in some sort of activity, it is a long way from supporting this type of functional modularization. It might be well to leave this type of speculation to the philosophers and restrict the label "science" to something that stays closer to the data.

What we might reclaim from the philosophers is the study of values. Values are statements about human behavior: if one takes certain actions, then certain consequences will result. These consequences often have clear implications for human well-being. These relationships may be (and are) studied scientifically.

Paul Brandon
Emeritus professor of psychology
Minnesota State University,
Mankato, Minnesota

Robert Epstein replies:

Harriet Hall's concerns about my statements regarding brain size are inconsistent with current research findings and standards. In determining both brain volume and the size of brain structures, MRIs are now widely regarded as superior to postmortem examinations. As neuroscientist Elizabeth Sowell and her colleagues at UCLA put it, "Of obvious concern with the postmortem studies is the normalcy of the participants studied after death and the notable scarcity of sampling from the younger years of life" (Sowell et al., 2004, 372). Other researchers note that "age-related changes in CSF [cerebrospinal fluid] may confound estimates of developmental changes in parenchyma" and that "postmortem swelling and/or shrinkage due to fixation may introduce artifacts into measures of fresh or fixed postmortem brains" (Courchesne et al., 2000, 673).

Regarding the extent of shrinkage as we age, Courchesne's recent study with normal, healthy individuals between ages nineteen months and eighty years indeed showed that "whole-brain volume decreased such that volunteers (age range, seventy-one to eighty) had volumes similar to those of young children" (Courchesne et al., 2000, 672)—in fact, to children between ages two and three. Even more significant, they found exactly the same pattern for the all-important gray matter of the brain, which contains the neurons (figure 3a, 678).

Finally, Hall is misinformed regarding the relationship between cognitive ability and brain size in individuals. In a 1995 paper in Intelligence, for example, using MRI data Erin Bigler and his colleagues at Brigham Young University found "remarkably similar rates of decline" in brain size and intelligence (Bigler et al., 1995, 109). Even more notable, in 1996 researchers drew the same conclusion in an extensive review of data obtained from "MRI, autopsy, endocranial measurements, and other techniques" (Rushton et al., 1996, 26). Just recently, Dutch researchers found this pattern again in looking at the relationship between memory problems and the size of the hippocampus in 500 people between ages fifty and eighty-five (van Norden et al., 2008).

These issues aside, as your other commentators correctly noted, my article was primarily about the tendency of many journalists and some scientists to make baseless claims about brain research. Hall's concerns, which I believe to be unfounded, are in any case irrelevant to my central theme.

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Update on 'Mr. Belloc Objects'

In his column "Mr. Belloc Objects" (SI, November/December 2008), which was his introduction to a 2008 reprint of a book of the same title by H.G. Wells, Martin Gardner wrote, "How did Belloc react to Wells's attack? He promptly wrote a book titled Mr. Belloc Still Objects. I had hoped I could add this to the current piece, but the publisher was unable to locate a copy."

However, Gardner subsequently tells us a copy of Belloc's book was located and the entire book added to the reprint of Wells's book (Battered Silicon Press, Shelbourne, Ontario), followed by a postscript of comments by Gardner.—KF

The letters column is a forum for views on matters raised in previous issues. Letters should be no longer than 225 words. Send letters as e-mail text (not as attachments) to letters@csicop.org. In the subject line, provide an informative identification, e.g.: "Letter re: Jones evolution article." Include your name and address at the end of the letter. You may also mail your letter to the editor to 944 Deer Dr. NE, Albuquerque, NM 87122, or fax it to 505-828-2080.

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